

Stevens County

# Voluntary Stewardship Program

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## Work Plan



Stevens County, Washington  
Approved December 15<sup>th</sup>, 2017

## VSP Statutory Requirements and Plan Elements

RCW 36.70A.720 (1) requires that the work plan accomplish each of the elements below to demonstrate protection of critical areas while maintaining the viability of agriculture in the watershed:

STATUTORY REQUIREMENT	PLAN SECTION	PG #
(a) Review and incorporate applicable water quality, watershed management, farmland protection, and species recovery data and plans;	Table 4-2 and 5-1 reference existing data and plans in relation to stewardship practices.	32, 45
	Appendix A: Applicable data and plans. Table A-1 on page 60 describes how data and plans are incorporated into the Work Plan.	59 - 77
(b) Seek input from tribes, agencies, and stakeholders;	Section 1.4: VSP Process in Stevens County	13-14
	Appendix B: Outreach plan	78
(c) Develop goals for participation by agricultural operators conducting commercial and noncommercial agricultural activities in the watershed necessary to meet the protection and enhancement benchmarks of the work plan;	Chapter 5: Goals and Benchmarks	38-49
(d) Ensure outreach and technical assistance is provided to agricultural operators in the watershed;	Section 7.1: Implementation Roles	56
	Appendix B: Outreach Plan	78
(e) Create measurable benchmarks that, within ten years after the receipt of funding, are designed to result in (i) the protection of critical area functions and values and (ii) the enhancement of critical area functions and values through voluntary, incentive-based measures;	Chapter 5: Goals and Benchmarks	38-49
(f) Designate the entity or entities that will provide technical assistance;	Section 7.1: Implementation Roles	56-57
(g) Work with the entity providing technical assistance to ensure that individual stewardship plans contribute to the goals and benchmarks of the work plan;	Section 4.5: Individual Stewardship Checklists	37
	VSP Stewardship Checklist	92

<i>(h) Incorporate into the work plan any existing development regulations relied upon to achieve the goals and benchmarks for protection;</i>	Chapter 4: Voluntary Protection Strategies	31-33
	Appendix A: Applicable data and plans	59
<i>(i) Establish baseline monitoring for: (i) Participation activities and implementation of the voluntary stewardship plans and projects; (ii) stewardship activities; and (iii) the effects on critical areas and agriculture relevant to the protection and enhancement benchmarks developed for the watershed;</i>	Chapter 3: Baseline Conditions	17
	Chapter 6: Monitoring and Adaptive Management.	50-55
	Appendix G: Aerial Monitoring Memo	103-106
<i>(j) Conduct periodic evaluations, institute adaptive management, and provide a written report of the status of plans and accomplishments to the county and to the commission within sixty days after the end of each biennium;</i>	Section 6.3: Adaptive Management	52
	Section 7.2: Reporting	58
<i>(k) Assist state agencies in their monitoring programs;</i>	6.2.2 Assisting State Agencies in their Monitoring Programs	52
	Table 6-2 explains monitoring indicators that can be used to assess effects on critical areas at watershed scale, including monitoring information supplied to the workgroup by state agencies.	54
<i>(l) Satisfy any other reporting requirements of the program.</i>	Section 7.2: Reporting	58

## Foundations & Principles of the Stevens County Work Plan

The Stevens County VSP Work Plan represents a locally driven effort to protect critical areas and to promote the viability of agriculture. This plan aims to:

- Rely entirely on voluntary participation to achieve all program requirements, goals, and benchmarks.
- Recognize agriculture as a centerpiece of our local communities and culture and as a vital asset in the ongoing protection and enhancement of critical areas.
- Promote flexibility for agricultural producers in terms of how they use and care for the land.
- Rely on a straightforward approach that uses existing resources to the maximum extent possible.
- Align with the customs and culture of Stevens County residents.
- Respect private property rights and protect the right of landowners to use and enjoy their property.
- Build on the existing stewardship ethic in Stevens County and foster stronger partnerships between key stakeholders such as agricultural producers, technical assistance providers, state and federal agencies, local government, and tribes.

## Resolution regarding the Stevens County VSP Work Plan

*Approved by the VSP Workgroup Voting Committee 12/08/2016*

When implementing the Voluntary Stewardship Program Work Plan, it is the expressed intent of this work group to work collaboratively with farmers, stakeholders, and landowners conducting agricultural activities. If progress toward the goals and benchmarks of this plan is not proceeding in a satisfactory manner, further outreach and education will be designed and implemented to address the shortcomings of this plan. The workgroup will not coerce, intimidate, or use any other form of undue influence to convince any landowner to implement any of the practices described in this plan. The workgroup agrees that we will not utilize or rely upon mandatory enforcement as described under RCW 36.70A.720 (3). Nor does this workgroup intend on developing a plan that any agency or the County could construe as requiring or encouraging focused enforcement.

RCW 36.70A.720 (3) says that

*Following approval of a work plan, a county or watershed group may request a state or federal agency to focus existing enforcement authority in that participating watershed, if the action will facilitate progress toward achieving work plan protection goals and benchmarks.*

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## Abbreviations

BMP	Best Management Practice
BOCC	Stevens County Board of County Commissioners
CAO	Critical Area Ordinance
CARA	Critical Aquifer Recharge Area
CPPE	Conservation Practices Physical Effects
DNR	Washington Department of Natural Resources
Ecology	Washington State Department of Ecology
EQIP	Environmental Quality Improvement Program
FEMA	Federal Emergency Management Agency
FFA	Frequently Flooded Area
FSA	Farm Service Agency
FWHCA	Fish and wildlife habitat conservation area
GHA	Geologically Hazardous Areas
GMA	Growth Management Act
NRCS	Natural Resource Conservation Service
NWI	National Wetlands Inventory
PHS	Priority Habitats and Species
RCW	Revised Code of Washington
RMS	Resource Management System
SCCD	Stevens County Conservation District
USDA	U.S. Department of Agriculture
VSP	Voluntary Stewardship Program
WDFW	Washington Department of Fish and Wildlife
WHIP	Wildlife Habitat Improvement Program
Workgroup	Stevens County VSP Workgroup
Work Plan	Stevens County VSP Work Plan
WRIA	Water Resource Inventory Area
WSCC	Washington State Conservation Commission
WSDA	Washington State Department of Agriculture



## Workgroup Participants

Merritt Acheson - farmer, Farm Bureau member  
Andrew Engell - Farm Bureau member  
Lorren Hagen - hay and cattle producer  
René Holaday - Stevens County Property Rights Group  
Bill Lacy - local farmer  
Julienne Loveall - Farm Bureau, dairy farmer  
Krista Stauffer - dairy farmer  
Lorna Mackowiak - landowner, property rights  
Eleanor Mattice - clean water and local food advocate  
Kathy Murbach - family farmer/ rancher  
Hilary Ohm - Citizens for a Clean Columbia, environmentalist  
Jim Paladin - local farmer  
Amanda Parrish - The Lands Council – Watershed Programs Director  
Owen Pullen - nursery owner  
Ann Van Dielen - landowner, forestry, ranching  
Brian Crossley - Spokane Tribe of Indians  
Mike McClellan - WDFW

## VSP Staff and Technical Assistance

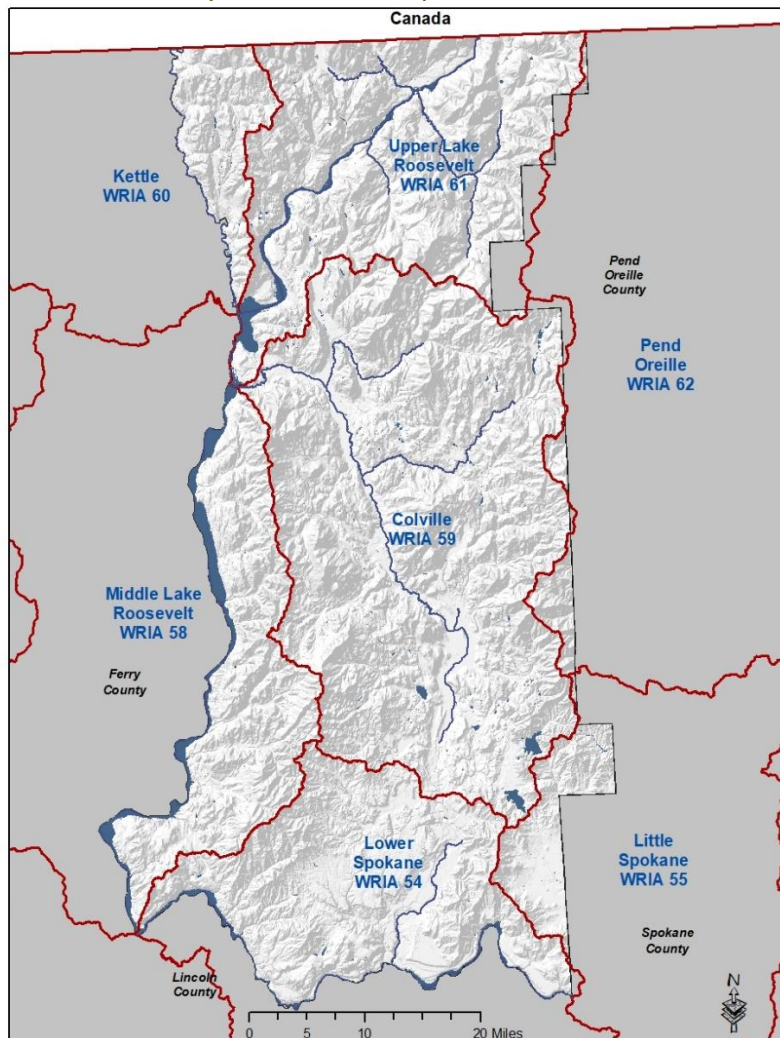
Adam Cares - Stevens County VSP Coordinator  
Debra Hansen - Stevens County WSU Extension Director  
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Erik Johansen - Stevens County Land Services Director  
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Charlie Kessler - SCCD Water Quality Coordinator  
Cecily Van Cleave - SCCD Natural Resource Technician

## Participating Watersheds

Seven WRIAs exist within Stevens County, and all seven of these, as they exist within the boundaries of Stevens County, are participating in VSP.

- Lower Spokane, Water Resource Inventory Area 54
- Little Spokane, Water Resource Inventory Area 55
- Middle Lake Roosevelt, Water Resource Inventory Area 58
- Colville, Watershed Resource Inventory Area 59
- Kettle, Water Resource Inventory Area 60
- Upper Lake Roosevelt, Water Resource Inventory Area 61
- Pend Oreille, Water Resource Inventory Area 62

### Stevens County Watershed Map



# 1 Introduction

Washington's Growth Management Act (GMA) requires counties and local governments to adopt development regulations to protect critical areas. In 2011, the Voluntary Stewardship Program (VSP) was established by the Washington State Legislature as an amendment to the GMA, in an effort to safeguard agricultural land use while protecting critical areas from potential impacts caused by agricultural activities. The VSP serves as an alternative to traditional regulatory methods, and offers a voluntary approach to protect critical areas and promote their voluntary enhancement through incentive-based measures, while maintaining the viability of agriculture. Instead of creating additional regulations regarding agricultural activities, the VSP relies on voluntary actions to protect critical areas and allows counties to work closely with county workgroups to develop locally-driven Work Plans.

## 1.1 Key Legal Framework

Washington's Growth Management Act (GMA) is codified in RCW 36.70A. The GMA defines critical areas<sup>1</sup> and requires that counties designate<sup>2</sup> and protect<sup>3</sup> such areas. The VSP legislation was adopted by the State Legislature in 2011 through ESHB 1886, and was added to the GMA as RCW 36.70A.700 – RCW 36.70A.760, which lays out the purpose, goals, requirements and procedures of the program. The VSP is administered by the Washington State Conservation Commission.

## 1.2 Overall Program Goals

According to RCW 36.70A.700 (2), the overall goals of the VSP are to:

- protect and enhance critical areas within the area where agricultural activities are conducted, while maintaining and improving the long-term viability of agriculture and reducing the conversion of farmland to other uses;
- focus and maximize voluntary incentive programs to encourage good riparian and ecosystem stewardship as an alternative to historic approaches used to protect critical areas;
- leverage existing resources by relying upon existing work and plans in counties and local watersheds, as well as existing state and federal programs to the maximum extent practicable to achieve program goals;
- encourage and foster a spirit of cooperation and partnership among county, tribal, environmental, and agricultural interests to better ensure the program success;
- improve compliance with other laws designed to protect water quality and fish habitat; and
- rely upon voluntary stewardship practices as the primary method of protecting critical areas and not require the cessation of agricultural activities.

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<sup>1</sup> RCW 36.70A.030

<sup>2</sup> RCW 36.70A.170

<sup>3</sup> RCW 36.70A.060

## 1.3 Frequently Asked Questions

### 1.3.1 What is the Voluntary Stewardship Program?

VSP is a non-regulatory, incentive based approach to protecting critical areas with regard to agricultural activities. It serves as an alternative to traditional regulatory approaches to critical areas protection, such as mandatory “no touch” buffers. The VSP legislation has two main intentions: protection and enhancement of critical areas, and maintenance and improvement of the long-term viability of agriculture.

### 1.3.2 What is meant by “Voluntary”?

Participation in VSP is voluntary – no landowner is required to participate. Agricultural producers who choose to participate are free to withdraw at any time.<sup>4</sup> Outside of VSP, landowners who have contractual agreements to implement practices under existing programs are still obligated to comply with those agreements. VSP participation does not exempt landowners from other applicable laws and regulations, such as the federal Clean Water Act or state hydraulic project approvals.

#### Under RCW 36.70A.030(5), critical areas include:

- Wetlands
- Fish and wildlife habitat conservation areas
- Critical aquifer recharge areas
- Geologically hazardous areas
- Frequently flooded areas

### 1.3.3 Where does VSP Apply?

The critical area protection elements of VSP only apply in relation to agricultural activities as defined in RCW 90.58.065. Non-agricultural land uses are regulated under the Stevens County Critical Areas Ordinance (CAO). All watersheds within Stevens County were selected to participate in VSP when the County opted into the program.

### 1.3.4 What are “agricultural activities” under VSP?

"Agricultural activities" means agricultural uses and practices including, but not limited to:

- Producing, breeding, or increasing agricultural products;
- Rotating and changing agricultural crops;
- Allowing land used for agricultural activities to lie fallow in which it is plowed and tilled but left unseeded;
- Allowing land used for agricultural activities to lie dormant as a result of adverse agricultural market conditions;
- Allowing land used for agricultural activities to lie dormant because the land is enrolled in a local, state, or federal conservation program, or the land is subject to a conservation easement; conducting agricultural operations;
- Maintaining, repairing, and replacing agricultural equipment; maintaining, repairing, and replacing agricultural facilities,
- Maintaining agricultural lands under production or cultivation;

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<sup>4</sup> RCW 36.70A.760

### *1.3.5 What does it mean to “protect and enhance critical areas”?*

The VSP statute requires creation of measurable benchmarks that are designed to voluntarily protect and enhance the functions and values of critical areas through voluntary actions by landowners. July 22, 2011 serves as the baseline date for critical area protection. This VSP Work Plan is designed to protect critical area functions and values that existed as of that date, and to promote additional voluntary enhancements. The term “protection” and “degradation” in the context of critical areas and agricultural activities were interpreted in the Washington Supreme Court’s *Swinomish* decision<sup>5</sup>. The *Swinomish* case clarifies that critical area protection requirements are met when agricultural activities do not cause any new harm or degradation to the “functional values” of the critical area. In the context of VSP:

- Protection of critical areas means preventing the degradation of baseline functions and values (conditions existing as of July 22, 2011, when the VSP legislation was passed).
- Enhancement means to improve the processes, structure, and functions of baseline conditions for ecosystems and habitats associated with critical areas<sup>6</sup>.

### *1.3.6 What is meant by “functions and values” of critical areas?*

Critical area functions and values generally refer to the ecological characteristics or processes associated with a particular critical area. The functions and values of the five types of critical areas are described in the Stevens County CAO, which lays out critical area protection requirements for non-agricultural land uses<sup>7</sup>. This document aims to mirror the descriptions of critical area functions and values listed in the CAO, while relying on a voluntary approach for protection of those areas.

### *1.3.7 What does it mean to “maintain agricultural viability”?*

To receive approval, the Work Plan must protect critical areas in a way that maintains agricultural viability<sup>8</sup>. This means that the approaches used to protect and enhance critical areas shall not be detrimental to the viability of agricultural operations. Furthermore, the VSP cannot require an agricultural producer to discontinue agricultural activities that legally existed before July 22, 2011<sup>9</sup>. Agricultural viability is discussed further in Section 5.4.

### *1.3.8 How do individual agricultural operators participate in VSP?*

Agricultural operators can participate in VSP both directly and indirectly. Direct participation in the VSP is achieved through completion of a VSP Stewardship Checklist. The VSP Stewardship Checklist will serve as an “individual stewardship plan” as defined in the VSP legislation. The Checklist is a tool to help landowners document their existing stewardship of critical areas and identify additional strategies to protect and enhance critical areas while maintaining or improving the viability of their operation.

Indirect participation occurs through participation in existing voluntary programs and practices, which factor into the VSP benchmarks, goals, and monitoring.

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<sup>5</sup> *Swinomish Indian Tribal Community v. Ecology*, 178 Wn.2d 571, 311 P.3d 6 (2013)

<sup>6</sup> RCW 36.70A.703

<sup>7</sup> Stevens County Critical Area Ordinance – Title 13. 13.10: Protection Regulations

<sup>8</sup> RCW 36.70A.725

<sup>9</sup> RCW 36.70A.702

## 1.4 The VSP Process in Stevens County

The Stevens County Board of County Commissioners opted into the VSP in 2011, and initiated the VSP process on February 1, 2016 once funding became available. Employees from Stevens County Land Services, Stevens County Conservation District, and WSU Cooperative Extension were designated to oversee the program as VSP Staff, and a county VSP Coordinator was hired. The VSP Legislation outlines the following general process for VSP implementation. The date that each component was completed in Stevens County is listed in parentheses.

- County opts into VSP (December 27, 2011)
- County designates a Watershed Group (Stevens County ‘Workgroup’ designated March 2016).
- Workgroup develops VSP Work Plan (March 2016 – October 2017)
- County sends Work Plan to State Conservation Commission (October 17<sup>th</sup>, 2017)
- State VSP Technical Panel Reviews Work Plan (within 90 days of submittal)
- County begins implementation of Work Plan (once approved)

### 1.4.1 Public Outreach

In 2016, the Stevens County Board of County Commissioners drafted a letter announcing the VSP and inviting local stakeholders from the agricultural, environmental, and tribal communities to participate in the process. Additional outreach efforts included flyers distributed at the major farm supply and grocery stores in Stevens County, an informational booth at the Northeast Washington Fair, a radio interview with a local radio station (KCHW), several newspaper articles and advertisements, and informal conversations with community members. While the most extensive outreach efforts were concentrated prior to formation of the VSP Workgroup, additional outreach was continued on a monthly basis throughout the development of the VSP Work Plan. *For further information on the outreach process, see Appendix B: Outreach Plan.*

### 1.4.2 Workgroup Formation

Per RCW 36.70A.720 (1) (b), the workgroup must “seek input from tribes, agencies, and stakeholders.” Through the outreach efforts mentioned above, Stevens County engaged with local agricultural and environmental stakeholders, along with the Colville Confederated Tribe and Spokane Tribe of Indians before establishing the VSP Workgroup. A concerted effort was also made to achieve extensive input and participation from members of the local community, who may not have been part of existing lead entities, watershed planning units, or other integrating organizations. This was done in an effort to make this Work Plan truly inclusive of local history, attitudes, and needs. Because turnout was very high for initial VSP Workgroup meetings (April – June 2016), a Voting Committee was created to streamline discussion and decision-making and to ensure fair representation of the interest groups defined in the VSP statute – “*agricultural and environmental groups and tribes that agree to participate*”<sup>10</sup>. Agency personnel were also included in the planning process in an advisory capacity. This included correspondence and workgroup meeting attendance by staff members from WDFW, Ecology, WSDA, WSCC, and the Washington Farm Bureau.

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<sup>10</sup> RCW 36.70A.715

#### 1.4.3 Workgroup Participation

The County received 24 applications from local stakeholders interested in serving on the VSP Workgroup Voting Committee. On July 1, 2016, the Board chose 13 people to serve on the Committee. Two additional places were left vacant for potential tribal participation. Tribal members were contacted regarding Voting Committee membership but did not choose to participate at that level. A person employed by the Spokane Tribe of Indians periodically attended Workgroup meetings and provided input on the Work Plan Draft.

#### 1.4.4 Meetings

The Stevens County VSP Work Group conducted its first meeting on April 14, 2016 and has continued to meet on a monthly basis since then, with meetings falling on the second Thursday of each month. The Work Group has welcomed the participation of interested parties at all meetings, and has made an effort to allow all local stakeholders chances to offer input. Decisions regarding this Work Plan were made by the VSP Voting Committee with the consultation of the VSP Advisory Staff. All VSP Workgroup meetings were open to the public and had open comment periods.

#### 1.4.5 VSP Work Plan Roles and Responsibilities

Roles and responsibilities for state agencies, counties, and work groups are identified in RCW 36.70A.705. These roles and responsibilities were adapted to the specific conditions and resources available in Stevens County, and are summarized in Table 1-1.

**Table 1-1: Work Plan Development Roles**

State- Approval and Administration	
Washington State Conservation Commission (WSCC)	Administers VSP statewide, gives final approval/rejection of county Work Plans
VSP State Technical Panel <sup>1</sup>	Provides technical input on work plans, reviews draft plans, makes recommendation to WSCC director to approve or reject Work Plan
Statewide Advisory Committee <sup>2</sup>	Works with WSCC to revise rejected work plans
Local – Administration and Work Plan Development	
Stevens County	Administers VSP grant funding for work plan development, conduct periodic monitoring and reporting on progress toward work plan goals and benchmarks
VSP Program Staff (Stevens County, SCCD, WSU Extension)	Organizes Work Group, coordinates development of work plan, conducts public outreach, provides technical support
VSP Work Group Voting Committee <sup>3</sup>	Votes on key issues regarding the VSP Work Plan
VSP Work Group	Develops and proposes Work Plan
Other Local Citizens	Provide input on Work Plan

**Notes:**

1. The VSP State Technical Panel includes members Ecology, WDFW, WSDA, and WSCC. There is one member from each of these agencies; four members in total.
2. The Statewide Advisory Committee includes representatives of environmental interests, agriculture, counties, and tribal interests, with two representatives invited for each.
3. The VSP Voting Committee was designated by the Stevens County Board of County Commissioners as the decision-making body within the VSP Work Group. There are regular Work Group participants who are not part of the Voting Committee, including a person representing the Spokane Tribe of Indians.

## 2 Stevens County Profile

Stevens County is located in Northeast Washington between the Columbia and Pend Oreille Rivers, and stretches north from the Spokane River to the Canadian border. The county is home to approximately 43,531 residents and covers 2,477 square miles of land<sup>1</sup>. The City of Colville, located in the north-central part of the county, serves as the county seat. Roughly 60% of the land in Stevens County is privately owned, with the remaining 40% owned by the federal government, state government, or the Spokane Tribe of Indians. Members of the Spokane Tribe of Indians, Kalispel Tribe of Indians, and Colville Confederated Tribe live and work within Stevens County. Large portions of the Colville National Forest and the Little Pend Oreille National Wildlife refuge are located within the county boundaries.

### 2.1 Climate and Water Resources

The climate is generally characterized by warm, dry summers and heavier precipitation in the winter, with a variable range of temperatures based on elevation. Precipitation averages 17.28 inches in Colville<sup>2</sup>. The growing season ranges from over 180 days in the southwest portion of the county to 80 days in the forested highlands.

Seven watersheds exist within Stevens County:

- Lower Spokane, Water Resource Inventory Area 54
- Little Spokane, Water Resource Inventory Area 55
- Middle Lake Roosevelt, Water Resource Inventory Area 58
- Colville, Watershed Resource Inventory Area 59
- Kettle, Water Resource Inventory Area 60
- Upper Lake Roosevelt, Water Resource Inventory Area 61
- Pend Oreille, Water Resource Inventory Area 62

### 2.2 Topography and Soils

The topography of Stevens County consists mainly of rugged, rocky slopes and hilly areas intersected by river valleys. In the mountainous and hilly areas, soils are rocky and mainly only suited for timber production and low-density livestock grazing. More productive soils are present in some of the valley bottoms. The Colville River Valley, which extends northward from the town of Springdale to the City of Colville, has a flat bottom ranging from 1-3 miles in width, and is where most of the cultivated crop production occurs.

Within the Colville River Valley, productive silt loam and silty clay loam soils are common, although the productive use of these soils is heavily dependent on drainage. There is generally a low risk of wind erosion, although soils are susceptible to wind and water erosion when surface residue is removed by wildfire or intensive cropland/ forest management practices.

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<sup>1</sup> US Census Bureau, 2010 Census

<sup>2</sup> Western Regional Climate Center, 2005 (data for the period 1917-2005)

## 2.3 Land Cover / Land Use

The land cover in Stevens County consists predominately of forested highlands, shrub covered hills, grasslands, and fertile farmlands in the valley bottoms. Conifer forest is the most common type of vegetative cover, and makes up roughly 70% of the land cover in the county, followed by shrubland (19%), and cropland (3%) and grass/pastures (3%)<sup>3</sup>. Most of the housing, commercial, and industrial activity is concentrated in the Colville River Valley along U.S. Highway 395. Cropland is mostly located in the floodplains and terraces of the river valleys. The USDA Cropland Data Layer can be used to analyze the makeup of land cover in a given area and to examine the changes in land cover over time. Table 2-1 summarizes the most recent data from the USDA Cropland Data Layer for Stevens County

**Table 2-1: Stevens County Land Cover Summary, 2011 - 2016**

Land Cover Type	2011 Percent	2016 Percent	Change
Evergreen Forest	71.67%	69.95%	-1.73%
Shrubland	15.06%	18.85%	+3.79%
Grass/Pasture	6.33%	3.26%	-3.07%
Crops	2.64%	3.33%	+0.69%
Open Water	2.42%	2.47%	+0.05%
Developed	1.49%	1.69%	+0.20%
Herbaceous Wetlands	0.26%	0.22%	-0.04%
Woody Wetlands	0.06%	0.14%	+0.08%
Deciduous Forest	0.06%	0.08%	+0.02%
Barren	0.01%	0.00%	-0.01%

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<sup>3</sup> Based on land cover analysis using the USDA Cropscape Tool (2011 - 2016)

## 3 Baseline Conditions

July 22<sup>nd</sup>, 2011 serves as the baseline date for VSP, and baseline conditions of agriculture and critical areas were assessed in reference to that date. Existing data that was available to the VSP Workgroup was used to develop baseline conditions.

### 3.1 Stevens County Agriculture

“Agriculture in Stevens County is very diverse. The typical farm has been about twenty to two hundred acres on which horses, chickens, pigs, beef cattle, dairy cattle, sheep, grains, and hay are raised and grazed. The landscape has been changing over the last twenty years with many larger acreages being subdivided into smaller parcels for rural housing, organic ventures, small business, horse pasture, etc. Several large agricultural acreages have been put into the Wetland Reserve Program while other agricultural ground has been purchased as investment property. As a result, an increasing amount of agricultural land is being taken out of production or has had its production capability greatly reduced. A few farms have gotten larger by leasing ground from retiring farmers or absentee land owners.

The challenges to agriculture in Stevens County are well known to local residents. There is a short growing season, a very wide variety of soils associated with frequently flooded areas and an old flood plain, substantial changes in elevation and large amounts of runoff water at certain times of the year. All these conditions often occur within a ten to forty-acre parcel. As a result, fields tend to be small and irregularly shaped because of soil types, poor drainage, seasonal flooding and numerous streams. Fencing presents a challenge in many areas because of frequent flooding, numerous streams and steep terrain.

Due to these conditions, agricultural lands are often best suited to grazing and hay production. Larger parcels of farmable ground raise oats, barley, spring wheat and winter wheat. Most agricultural enterprises are not completely self-supporting. Generally, at least one member of the family is employed off the farm part or full time. Very little labor is hired on the farm. Most equipment is older and of smaller horsepower than what is considered normal for current day agricultural practices. Our agricultural endeavors reflect a way of life that enhances the desirability of the area and maintains the rural flavor that is so important to our communities.”

- *Narrative submitted by a Stevens County Farmer and VSP Workgroup member.*



Cultivated fields in the Colville Valley



Hay production is common in Stevens County

### 3.1.1 General Statistics and Product Makeup

Data from the USDA Census of Agriculture over the past 30 years was used to characterize the scale and product makeup of Stevens County Agriculture.<sup>1</sup> Common agricultural land uses in Stevens County include rangeland cattle grazing, hay production, grain farming. Many landowners conduct multiple activities on the same piece of property. Key statistics from the most recent Census of Agriculture in 2012 are summarized below:

#### 2012 Snapshot

<b>Number of Farms:</b>	<b>1,148</b> Over the past 30 years, the number of farms in Stevens County has remained relatively stable. The 30-year average is 1,140 farms.
<b>Average Farm Size:</b>	<b>459 acres</b> The majority of farms in Stevens County are less than 100 acres, although there are also some very large farming operations of over 2,000 acres.
<b>Average Age of Principal Farmer:</b>	<b>60</b> The average age of principal farmers in Stevens County increased by ten years from 1982 – 2012.
<b>Annual Product Sales:</b>	<b>\$36.3 Million</b> This ranks 27 <sup>th</sup> out of 39 counties in Washington. The majority of farms in the county have annual product sales under \$10,000.

**Table 3-1: Agricultural Product Makeup (% of total sales)**

<b>Livestock</b>	Cattle and Calves	32%
	Dairy	5%
	Horses, ponies, mules, burros, and donkeys	2%
	Sheep & Goats (wool, mohair, milk)	1%
	Other Animals and Animal Products	11%
<b>Crops</b>	Hay	24%
	Grains, oilseeds, dry beans, dry peas	14%
	Vegetables, fruit, nuts, cut Christmas trees, aquaculture	5%
	Nursery, greenhouse, floriculture, and sod	5%

*See Appendix C: Ag Industry Data for more information.*

<sup>1</sup> USDA Census of Agriculture, Stevens County Washington, 1982 – 2012.

### 3.1.2 Economic Impacts

An economic impact analysis of the agricultural industry in Stevens County was performed using 2014 economic data from Minnesota IMPLAN group, which was obtained through the USDA/NRCS Central National Technology Support Center. Agriculture is the second largest commercial sector in Stevens County in terms of total economic output, behind the timber and forest products industry, and maintains an estimated 1,261 jobs, more than any other industry in the county (although these jobs do not necessarily correspond to high levels of employee compensation).

**Table 3-1: Total Employment (full time jobs) by Ag Industry Sector**

INDUSTRY SECTOR	DIRECT JOBS SUPPORTED	TOTAL JOBS
All other crop farming (includes hay)	532.73	550.60
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	309.38	440.50
Greenhouse, nursery, and floriculture production	42.03	53.60
Fruit farming	23.59	26.20
Grain farming	17.53	37.60
Animal production, except cattle and poultry and eggs	120.40	135.50
Dairy cattle and milk production	5.82	12.50
Vegetable and melon farming	1.71	2.10
Oilseed farming	0.77	1.40
Tree nut farming	0.58	0.60
Poultry and egg production	0.18	0.30
		<b>1,261</b>

### 3.1.3 Agricultural Activities - Extent

The Stevens County VSP Technical Staff examined existing data layers<sup>1</sup> to map the extent of agricultural activities within the county as closely as possible to the 2011 VSP Baseline year. This data is not intended to show all of the agricultural activities within the county; it is simply a baseline figure to track changes.

**Table 3-2: Estimated Extent of Agricultural Activities (acres) in 2011**

Private Land		
	Hay/Silage <sup>2</sup>	39,630
	Cereal Grain	17,577
	Commercial Tree	233
	Nursery	229
	Orchard	153
	Vegetable	102
	Other	4,547
	<b>Subtotal</b>	<b>62,471</b>
Public Land		
	Forest Service Grazing Leases	205,090
	<b>TOTAL ACRES:</b>	<b>267,561</b>

<sup>1</sup> This included 2011 WSDA Cropland Data and Forest Service grazing leases. Layers were processed in ArcMap to remove overlapping areas.

<sup>2</sup> Some hay/silage also grazed.

## 3.2 Critical Areas

Critical areas perform key functions that enhance our environment and protect us from hazards. As defined in RCW 36.70A.030 critical areas include: wetlands, fish and wildlife habitat conservation areas, critical aquifer recharge areas, frequently flooded areas, and geologically hazardous areas.

The definitions of each Critical Area are based on the Stevens County Critical Area Ordinance (CAO), which classifies and designates critical areas in the county under the authority of RCW Chapter 36.70A. Agriculture in Stevens County has a high degree of overlap and interaction with critical areas; specifically riparian habitat, frequently flooded areas, and wetlands.

### 3.2.1 Historic Critical Area Conditions

Rugged topography, heavy forest cover, and poor drainage have been challenges to productive agriculture in Stevens County<sup>1</sup>. Clearing of the county's extensively forested landscape for farmsteads, fields, and pastures was done by early prospective farmers, miners, and loggers who settled in the area.

Another notable agricultural impact was the alteration of stream channels and other drainage improvements in river valleys. Streams and wetlands were altered throughout most of the 19<sup>th</sup> and 20<sup>th</sup> centuries as farmers worked to increase the amount of farmable land and improve agricultural production. In the Colville River Valley, thousands of acres of marshy, poorly drained land were converted to productive farmland through dredging, channel realignment, and supplementary ditching along the Colville River<sup>2</sup>.



Channel realignment of the Colville River

The VSP is not intended to restore critical areas to pre-development conditions, but simply to maintain the functions and values that existed as of July 22<sup>nd</sup>, 2011. The conditions surrounding critical areas and agricultural activities in Stevens County were assessed based on existing data and plans, GIS layers, data from Stevens County Conservation District, and input from local stakeholders. The analysis included:

- review of critical area functions and values based on the Stevens County CAO
- discussion of local issues regarding the interaction between agricultural activities and critical areas
- calculations of the extent of the intersection between critical areas and agriculture

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<sup>1</sup> Soil Survey of Stevens County, Washington, USDA Bureau of Soils, 1915

<sup>2</sup> Stevens County Historical Society, 2016 & Stevens County Conservation District records, 1952.

### 3.3 Baseline Intersection of Critical Areas and Agricultural Activities

The intersection of agricultural activities and critical areas was calculated to develop a baseline understanding of the location and extent of agricultural activities and critical areas occur within the county. This information can be used to focus and maximize outreach and voluntary implementation efforts. The analysis was performed using the following data:

- **Agricultural Activities assessment** based primarily on Washington State Department of Agriculture (WSDA) 2011 agricultural land cover data. This data was used because it is regularly updated and allows simple, repeatable analysis. Information regarding grazing on public land was also analyzed but was not factored into analysis of critical area intersects, since the VSP only applies to agricultural activities on private lands.
- **Critical areas assessment** was based on designations in the Stevens County Critical Area Ordinance. Data layers were assembled by the Stevens County Geographic Information Services Division and used to calculate acreages of intersection with agricultural activities.<sup>1</sup>
- **Workgroup Feedback** was gathered to add to the narrative of critical area conditions.

#### Note about Agriculture/ Critical Area Intersect Calculations

Any calculations of the extent of critical areas and agricultural activities within the county represent watershed-scale estimations based on the available data. These calculations are used for planning purposes only. The calculated acreage or extent of critical areas does not serve as an indication of critical area functions and values, and is not a protection benchmark in this plan.

**Table 3-3: Overall Estimated Agriculture / Critical Areas Intersection<sup>1</sup>**

Critical Area Type	Acres	Percent of Ag Lands
Wetlands <sup>2</sup>	12,739	20%
Fish and Wildlife Habitat Conservation Areas <sup>3</sup>	33,216	53%
Critical Aquifer Recharge Areas	2,267	3.6%
Geologically Hazardous Areas (steep slopes)	1,258	2%
Frequently Flooded Areas.	6,390	10%


*\*Excludes 27,918 acres of Northwest White-tailed Deer Habitat*

Notes:

1. Baseline estimate of Agricultural Activities is from 2011 WSDA Crop Layer, totaling 62,471 acres. Additional agricultural activities occur throughout the county but are not included in the baseline figure.
2. Includes a large portion of drained wetlands that have been historically farmed (60% of the total wetlands intersecting with agriculture). Additional acreages of seasonally wet areas have historically been farmed. Actual determination of wetland functions and values must be conducted on a site-specific basis.
3. The Stevens County CAO only lists protection requirements for habitats of species that the state or federal government has designated as *endangered*, *sensitive*, or *protected*.

<sup>1</sup> Layers include NWI, WDFW PHS regions, Stevens County CARA map, NRCS SSURGO soil survey dataset, Washington DNR 2011 Stream Layer, and FEMA Flood Rate Insurance Maps

### 3.3.1 Wetlands Narrative

	<p>Wetlands are areas that are inundated or saturated by surface water or ground water and support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. (Stevens County CAO, Chapter 13.10: Protection Regulations). Many areas in Stevens County are seasonally wet or are previously drained, farmable wetlands. The actual existence of wetlands must be determined on the ground on a site-by-site basis.</p>
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#### Functions and Values<sup>1</sup>

##### Water Quality

- Erosion control, the reduction of siltation
- Reduction of surface waters pollution through filtration
- Areas of recharge and discharge for lakes and groundwater aquifers

##### Hydrology

- Water storage
- Flood storage, moderating surface and storm water flows

##### Habitat

- Prime habitat for aquatic, terrestrial, and avian species

#### Baseline Conditions

- A large portion of agricultural activities in river valleys intersect with seasonally wet areas that have been farmed prior to the 2011 VSP baseline. Farming is expected to continue in these areas. On NWI maps, these areas are mainly classified as “drained”<sup>2</sup> wetland or seasonally flooded freshwater emergent wetlands<sup>3</sup>. Determination of actual wetland functions and values must be conducted on a site-specific basis.
- Difficulty of access and other practicalities prevent agricultural activities in seasonal wet areas.
- Maintenance of drainage systems existing prior to July 22<sup>nd</sup>, 2011 on agricultural land does not constitute loss of wetland functions and values.

<sup>1</sup> Stevens County Critical Area Ordinance Chapter 13.10: Protection Regulations. 13.10.020 (2). (pg. 9-10).

<sup>2</sup> U.S. Fish and Wildlife Service *National Wetlands Inventory* code PEM1Ad, accessed 3/14/2017

<sup>3</sup> U.S. Fish and Wildlife Service *National Wetlands Inventory* code PEM1C, accessed 3/14/2017

- 450 acres of wetlands mapped by WDFW as Priority Habitats intersect with ag lands in the 2011 WSDA Crop Layer.
- The majority (about 90%) of intersection between wetlands and agricultural activities is in the Colville River Watershed (WRIA 59) and is mostly located along the Colville river valley.

### **Potential Impacts**

- Livestock access can cause direct and indirect impacts on habitat and water quality in wetlands.
- Fertilizers and pesticides used in crop production can affect water quality in wetlands.
- Creation of impervious surfaces could negatively impact wetland functions and values.

#### **Determining Wetland Extent**


The actual existence of wetlands within Stevens County can only be determined on a site-by-site basis by technical experts on the ground.<sup>1</sup> However, the Stevens County Critical Area Ordinance uses National Wetland Inventory (NWI) maps to determine the approximate distribution and extent of wetlands in Stevens County<sup>2</sup>. For analytical purposes, National Wetlands Inventory maps were used to generate a general understanding of the extent of potential wetlands intersecting with agricultural activities in the county. Many areas that appear as wetlands on the NWI maps have been farmed for many decades prior to the 2011 VSP baseline date.

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<sup>1</sup> The U.S. Fish and Wildlife Service states that NWI maps “show wetland type and extent using a biological definition of wetlands. There is no attempt to define the limits of proprietary jurisdiction of any Federal, state, or local government, or to establish the geographical scope of the regulatory programs of government agencies.”

<sup>2</sup> Stevens County Critical Area Ordinance Chapter 13.10: Protection Regulations. 13.10.022. Extent on NWI maps does not serve as an indication of wetland functions and values.

### 3.3.3 Fish and Wildlife Habitat Conservation Areas Narrative

	<p>Fish and Wildlife Habitat Conservation Areas are lands and waters that provide habitat to fish and wildlife species within their natural geographic distribution. These include:</p> <ul style="list-style-type: none"> <li>• areas where fish and wildlife species that the state has designated as <i>endangered</i>, <i>threatened</i>, or <i>sensitive</i> have a primary association,</li> <li>• habitats and species of local importance.</li> <li>• lakes, rivers, streams categorized within water type 1-5.<sup>1</sup></li> <li>• naturally occurring ponds under 20 acres and their associated aquatic beds,</li> </ul>
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#### Functions and Values<sup>2</sup>

##### Water Quality

- Sediment Filtration
- Temperature Protection
- Nutrient reduction

##### Hydrology

- Water storage and transport, retention of base flows

##### Habitat

- Provide primary habitat for aquatic, avian, and terrestrial species
- Support life cycle of species designated as endangered, threatened, or sensitive. (bald eagle, common loon, lynx, fisher, gray wolf, grizzly bear)

#### Baseline Conditions

- The Colville River and its associated riparian areas form a key nexus between agricultural activities and fish and wildlife habitat. Much of the river has been historically modified to allow agricultural activities on the land adjacent to it.
- Most state or federally protected fish and wildlife species habitats are located on public lands, forested uplands, or around large waterbodies where agricultural activities are not

<sup>1</sup> Water Type Categorization found in WAC 222-16-030, *Forest Practices Rules and Regulations*

<sup>2</sup> Stevens County Critical Area Ordinance Chapter 13.10: Protection Regulations. 13.10.033.

a primary land use. Lynx habitat intersects with rangeland grazing on National Forest Land, but generally does not overlap with agricultural activities occurring on private land.

- Livestock grazing occurs adjacent to streams and riparian areas in many parts of the county, and livestock have historically accessed streams for drinking water.
- There is a large amount of intersect between whitetail deer habitat and agricultural activities. Deer populations can negatively impact agricultural viability by causing damage to crops. Elk are also becoming an increasing problem, causing crop and fence damage.

### Potential Impacts

- Depending on their concentrations, wildlife and livestock can cause direct and indirect contamination of streams from sediment and bacteria.
- Removal of mature trees in bald eagle nesting areas can have negative habitat implications.
- Degradation or lack of riparian vegetation can cause increased water temperatures and lack of habitat for aquatic species.
- Unstable or failing streambanks can cause increased sediment levels and loss of farm ground.
- Fertilizers and pesticide runoff can have potential impacts on water quality and species health.

An analysis of the priority species and habitats intersecting with agricultural activities was conducted using the distribution maps found in the WDFW Priority Habitats and Species (PHS) List.

**Table 3-4: PHS Habitats / Agricultural Activities Intersection**

Habitat Type	Acres	% of Agricultural Lands Intersected
Bald Eagle	54	0.1%
Biodiversity Areas And Corridor	963	1.5%
Golden Eagle	971	1.6%
Moose	1,097	1.8%
Northwest White-tailed Deer	27,918	44.7%
Red-necked Grebe	6	0.0%
Rocky Mountain Elk	225	0.4%
Waterfowl Concentrations	1,534	2.5%
Wetlands	448	0.7%
<b>Total Acres<sup>1</sup></b>	<b>33,216</b>	

Note:

1. Other state or federally designated species exist in Stevens County, but do not have any mapped intersection with agricultural activities, or are not mapped. For the full PHS list, see *Appendix A*.

### 3.3.5 Critical Aquifer Recharge Areas (CARAs) Narrative



Critical Aquifer Recharge Areas are areas with a critical recharging effect on aquifers used for potable water, or areas where an aquifer that is a source of drinking water is vulnerable to contamination that would affect the potability of water. There is one Critical Aquifer Recharge Area encompassing roughly 81 square miles in the southeastern portion of Stevens County.

#### Functions and Values<sup>1</sup>

##### Water Quality

- Recharging effect on aquifers used for potable water via permeation of water through soil and underlying material

##### Hydrology

- Recharges groundwater resources

#### Baseline Conditions

- There is one designated CARA in the southeastern portion of Stevens County encompassing an estimated 52,000 acres, of which an estimated 2,267 acres (4.4%) are agricultural land.
- Existing fertilizer and pesticide regulations and common management practices make contamination of the CARA due to agriculture unlikely.
- A significant amount of water currently leaves local watersheds for downstream uses in other counties. Keeping more water in local watersheds is important to protecting CARA functions and values as well as agricultural viability.
- Public utility and sewer districts apply nutrients on agricultural land within the CARA. This is a permitted system following agronomic rates and incorporating soil and well testing.


#### Potential Impacts

- Contamination of the CARA from nitrates and other agrichemicals can occur if existing laws and best management practices are not followed.

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<sup>1</sup> Stevens County Critical Area Ordinance Chapter 13.10: Protection Regulations. 13.10.042.

### 3.3.6 Frequently Flooded Areas Narrative

	<p>Frequently Flooded Areas are floodways and associated floodplains that have a one (1%) percent or greater chance of flooding in any given year. Frequently Flooded Areas are identified based on FEMA Flood Rate Insurance Maps. Most of the Frequently Flooded areas in Stevens County are found in WRIA 59, and have a high degree of overlap with agricultural activities in the Colville River Valley.</p>
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#### Functions and Values<sup>1</sup>

##### Water Quality

- Affects surface and groundwater quality by moving sediments and other materials based on timing and magnitude of flows

##### Hydrology

- Temporary flood storage and conveyance

##### Soil Health

- Soil health and vegetative conditions within floodplain affect potential for erosion during flood events.

#### Baseline Conditions

- Frequently Flooded Areas intersect with an estimated 6,390 acres of agricultural land in Stevens County. Over 90% of this intersection occurs within the Colville River Watershed (WRIA 59), mostly along the Colville River.
- Sheet flooding associated with overflow from stream channels into adjacent floodplains is common on an annual basis in valley bottoms during spring runoff periods.
- Seasonal flooding in the Colville River Valley has significant impacts on agricultural viability, including damage or loss of crops, delay of planting access, soil erosion, and washout of nutrients.
- The Colville River is a highly modified system that was historically dredged and straightened to reduce flood impacts and improve land for agricultural production.

<sup>1</sup> Stevens County Critical Area Ordinance Chapter 13.10: Protection Regulations. 13.10.050

- Supplemental drainage ditches and drain tiles have also historically been installed, and may require periodic cleaning and maintenance to manage flood impacts.
- Flexible strategies that balance the mitigation of flood impacts with protection of aquatic and riparian habitats are needed to protect agricultural viability in Stevens County.

### **Potential Impacts**

- Agricultural impacts to floodplain vegetation and root structures can affect potential for soil erosion and nutrient runoff during flood events.
- Certain tillage practices can make soil more susceptible to erosion during flood events.
- Impacts on water quality due to chemical and nutrient runoff during flooding events.
- Agriculture-related channel maintenance, improvement, and bank stability projects could enhance the functions and values of the floodplain (flood conveyance, erosion potential).



**Flooding on the Colville River in early spring, March 16<sup>th</sup> 2017**  
Photo Courtesy of SCCD



**Dredging on Colville River, 1940.**  
Photo Courtesy of SCCD.

### 3.3.8 Geologically Hazardous Areas Narrative



Geologically Hazardous Areas are areas that are susceptible to erosion, sliding, earthquake, or other geological events. In Stevens County, these include areas with “severe rill” and “inter-rill” erosion hazard, and areas with a 30% or greater slope. NRCS Erosion and Landslide Hazard maps are used for broad identification of geologically hazardous areas.

#### Functions and Values<sup>1</sup>

##### Water Quality

- Risk of deposition of sediment in waterways due to erosion or mass failure of geologically hazardous areas.

##### Soil Health

- Potential for erosion or mass movement due to slope and soil characteristics.

#### Baseline Conditions

- An estimated 1,285 acres of geologically hazardous areas intersect with agricultural land.
- Crop production on geologically hazardous areas is not common in Stevens County. Livestock grazing on steep slopes is more common.
- Farmers have a practical incentive to maintain slope stability and keep soil in place.
- Wildfires have removed vegetation from some slopes in recent years.

#### Local Protection Issues

- Removal of vegetation or disturbance of soil could make steep slopes more susceptible to failure.
- Wildfires can increase erosion and landslide risk by removing vegetation.
- Movement of topsoil on steep slopes under certain conditions.
- Agricultural activities such as managed livestock grazing can have a net benefit to erosion and landslide potential through reduction in ladder fuels and creation of terraced paths

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<sup>1</sup> Stevens County Critical Area Ordinance Chapter 13.10: Protection Regulations. 13.10.060.

## 3.4 Key Protection Issues

**Table 3-5: Summary of Key Protection Issues and Data Sources**

Resource Concern	Local Issue	Data Source
<b>Water Quality</b> Elevated Water Temperature Excess Nutrients Sediment Bacterial Pathogens	Surface waters in Stevens County fall into 'polluted' categories for several parameters, including temperature, sediment, bacteria, and dissolved oxygen. This includes sections of the Colville River, where a large portion of agricultural activities are located.	Washington Department of Ecology 303d list (2012) Colville River Dissolved Oxygen TMDL (which also addressed ammonia) Colville River Watershed Bacteria TMDL
<b>Hydrology</b> Excess Water	Seasonal flooding in river valleys. Excess water on agricultural lands prevents access during certain times of year.	Historic records and imagery Input from agricultural producers FEMA 100-year floodplain data
Insufficient Water	summer low flows	Washington Department of Ecology Water Resources Program
<b>Soil Health</b> Sheet and Rill Erosion	Soil loss on slopes and in seasonally wet areas.	On-ground observation NRCS RUSL2 Program
Streambank Erosion	Mass wasting of streambanks, especially during periods of high runoff.	Stevens County Conservation District
<b>Habitat</b> Streams and Riparian Areas	(see <i>water quality</i> above)	Washington Department of Ecology 303d list (2012) Washington DNR Stream Typing
Wildfires	high fuel loads in some areas	Washington DNR Stevens County Stevens County Conservation District.

## 4 Voluntary Protection Strategies

Agricultural producers in Stevens County already implement various stewardship practices that protect and enhance critical areas. This plan aims to focus and maximize the application of voluntary stewardship activities in a way that protects and enhances critical areas. By using available tools to examine the effects of stewardship practices on critical areas, measurable benchmarks can be designed to achieve protection and enhancement of critical area functions and values. The Work Plan does not rely upon any regulations to achieve protection goals and benchmarks.

### 4.1 Linking stewardship practices and critical area functions & values

Critical area functions and values were summarized in Chapter 3. Using the NRCS Conservation Practices Physical Effects (CPPE) tool and input from workgroup members, specific stewardship practices, identified by NRCS practice names, were linked to critical area functions and values.

**Table 4-1: Critical Area Functions and Values Summary**

Critical Areas	Critical Area Functions and Values			
	Water Quality	Hydrology	Soil Health	Habitat
Wetlands	x	x		x
Fish and Wildlife Habitat Conservation Areas	x	x		x
Critical Aquifer Recharge Areas	x	x		x
Frequently Flooded Areas	x	x	x	
Geologically Hazardous Areas			x	

### 4.2 Analyzing Practice Effects with CPPE

The CPPE tool can be used to evaluate how certain agricultural stewardship practices affect critical areas. The CPPE assigns qualitative descriptions and numeric scores to individual practices based on their effectiveness at treating specific resource concerns. Using this system, practices can be evaluated based on their effectiveness at treating a specific protection concern related to critical areas. A full list of stewardship practices and CPPE effects is available in Appendix F: *Summary of CPPE Practice Effects and Critical Area Functions and Values*. VSP technical assistance providers will use CPPE when recommending practices to landowners.

**Figure 4-A: CPPE Practice Effects Key**

5	Substantial Improvement
4	Moderate to Substantial Improvement
3	Moderate Improvement
2	Slight to Moderate Improvement
1	Slight Improvement
0	No Effect
-1	Slight Worsening
-2	Slight to Moderate Worsening
-3	Moderate Worsening
-4	Moderate to Substantial Worsening
-5	Substantial Worsening

Table 4-2: Key Stewardship Practices and Critical Area Effects Crosswalk

Key Stewardship Practices <sup>1</sup>			Critical Area Functions (based on average CPPE function scores) <sup>2</sup>					Critical Areas Protected				
Management Type	NRCS Code	Practice Name	Soil	Hydrology		Water Quality	Habitat	Wetland	F&W Habitat	CARA	FFA	GHA
				Excess	Insufficient							
Weed & Pest Control	595	Integrated Pest Management <sup>5</sup>	2.00	0.00	0.00	4.00	2.00	x	x	x		x
	315	Herbaceous Weed Control <sup>5</sup>	3.20	0.00	1.00	-1.00	1.67					
Water	449	Irrigation Water Management <sup>7</sup>	1.63	1.00	1.00	2.00	0.00	x	x	x	x	x
	442	Sprinkler System <sup>7</sup>	0.88	1.50	2.50	1.55	1.00					
Soil	580	Streambank and Shoreline Protection <sup>4</sup>	4.00	0.00	0.00	1.25	2.00	x	x		x	x
	328	Conservation Crop Rotation	2.67	1.33	2.00	1.75	2.00					
	340	Cover Crop	2.07	1.33	1.50	1.75	2.00					
	345	Residue and Tillage Management, Reduced Till <sup>5</sup>	2.10	1.00	1.50	2.20	1.67					
	329	Residue and Tillage Management, No Till <sup>5</sup>	2.50	0.00	2.00	2.00	1.67					
Nutrients	590	Nutrient Management <sup>3,4,5</sup>	1.67	0.00	0.00	3.50	0.00	x	x	x		
Livestock	528	Managed grazing <sup>5,6</sup>	2.73	1.00	1.00	1.30	2.67	x	x	x	x	x
	472	Access Control <sup>4,5,6</sup>	2.73	1.33	1.50	1.44	2.00					
	614	Watering Facility <sup>4,5,6</sup>	2.20	0.00	0.00	1.71	4.00					
Habitat	643	Restoration and Management of Rare or Declining Habitats	0.00	0.00	0.00	2.00	4.00	x	x		x	x
	666	Forest Stand Improvement <sup>6</sup>	0.33	0.00	1.50	1.13	2.33					
	645	Upland Wildlife Habitat Management	2.40	-0.50	0.00	2.00	5.00					
	612	Tree/Shrub Establishment <sup>4</sup>	2.59	1.67	0.50	1.17	2.33					
	327	Conservation Cover	3.15	1.25	0.00	2.89	3.33					
	649	Structures for Wildlife <sup>9</sup>	0.00	0.00	0.00	0.00	4.00					
	659	Wetland Enhancement <sup>4</sup>	1.00	2.00	0.00	1.50	4.00					
	395	Stream Habitat Improvement and Management <sup>4,8</sup>	5.00	0.00	0.00	2.00	3.00					
Additional Enhancement	342	Critical Area Planting	3.88	0.00	0.00	2.33	2.00	x	x	x	x	x
	393	Filter Strip <sup>5</sup>	5.00	0.00	0.00	2.36	2.00					
	412	Grassed Waterway <sup>5</sup>	2.40	2.50	0.00	1.60	1.00					
	391	Riparian Forest Buffer <sup>4,5,8</sup>	2.50	0.67	0.00	2.83	4.00					
	390	Riparian Herbaceous Cover <sup>8</sup>	2.71	0.33	0.00	2.50	3.50					

NOTES:

<sup>1</sup> Key Practices include practices that address common resource concerns related to critical areas, are commonly implemented, or are identified by the workgroup or by existing watershed plans as being protective of critical area functions and values.

<sup>2</sup> The NRCS CPPE matrix was used to calculate average function effects scores for the key practices. See Appendix F for the full list of practices and CPPE scores.

**EXISTING WATERSHED PLAN CROSSWALK:**

<sup>3</sup> Colville River Watershed Fecal Coliform Bacteria TMDL Detailed Implementation Plan

<sup>4</sup> Spokane River Dissolved Oxygen TMDL

<sup>5</sup> Little Spokane River Fecal Coliform Bacteria, Temperature, and Turbidity TMDL

<sup>6</sup> Colville National Forest Temperature, Bacteria, pH, and Dissolved Oxygen TMDL

<sup>7</sup> Lower Spokane Watershed Plan

<sup>8</sup> Management Recommendations for Washington’s PHS, Volume 2: Riparian

<sup>9</sup> Management Recommendations for Washington’s PHS, Volume 4: Birds

## 4.3 Existing Protections for Critical Areas

Agricultural operators are already subject to laws, regulations, industry standards, consumer demands, and public scrutiny related to environmental stewardship. Many of these existing sideboards provide implicit protection of critical area functions and values. This section illustrates some of the protections that already exist to protect critical areas with regard to agricultural activities.

### 4.3.1 *Laws and Regulations*

The VSP does not remove the obligation for agricultural operators to comply with existing federal, state, and local laws and regulations. There are a number of existing laws and regulations which apply to agriculture and protect the functions and values of critical areas. Some examples of applicable laws include:

- The Federal Clean Water Act;
- Federal Endangered Species Act;
- Federal Insecticide, Fungicide, and Rodenticide Act;
- Spokane Tribe of Indians Surface Water Quality Standards<sup>1</sup>;
- Water Pollution Control Act (90.48 RCW);
- Hydraulic Code (77.55 RCW);
- Dairy Nutrient Management (90.64 RCW);
- Washington Pesticide Application Act (17.21 RCW).
- Shoreline Management Act (90.58 RCW)

For a complete list of laws and regulations that apply to agriculture in Stevens County, see Appendix A: Applicable Data and Plans. In instances where agricultural operators are failing to comply with existing environmental laws and regulations, the outreach, education, and technical assistance strategies planned through VSP can help promote compliance through voluntary changes in management practices.

### 4.3.2 *Market Demands*

Many agricultural producers must comply with industry standards, certification requirements, or consumer demands before their products can be sold. In many cases, this involves adherence to environmentally friendly practices. Examples of certification programs include the Pacific Northwest Direct Seed Association's "Farmed Smart" program and the Global Good Agricultural Practices (G.A.P.) certification. Agricultural producers also face increasing questions from retailers and consumers regarding how their food is produced with respect to the environment.

### 4.3.3 *Public Scrutiny*

Many of the agricultural enterprises in Stevens County are located along or near U.S. Highway 395, State Highway 25, and other well-traveled roads. This makes the actions of these operations highly visible, and passersby often do not hesitate to report agricultural activities that they view as degrading to the environment.

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<sup>1</sup> Resolution 2003-259

## 4.4 Voluntary Stewardship Practices in Stevens County

One of the key purposes of VSP is to leverage existing resources by relying on existing work and plans, private-sector activities, and government programs to achieve Work Plan goals (RCW 36.70A.700 (2)). Since the 2011 VSP baseline, agricultural operators in Stevens County have implemented practices that protect and enhance the functions and values of critical areas. An inventory analysis of stewardship practices applied since 2011 was conducted to allow the development of measurable goals and benchmarks for participation in voluntary stewardship activities.

Baseline Data on the implementation of stewardship practices in Stevens County was used to assess implementation levels of stewardship practices since the July 22<sup>nd</sup>, 2011 baseline. This included an inventory of the practices implemented through NRCS programs and through state programs administered by SCCD. Practices were generally categorized using NRCS BMP standards. Implementation data was collected from the following sources:

<b>Organization</b>	<b>Program</b>
NRCS	<i>Environmental Quality Incentives Program (EQIP)</i>
	<i>Wildlife Habitat Improvement Program (WHIP)</i>
	<i>Conservation Stewardship Program (CSP)</i>
	<i>Wetlands Reserve Program (WRP)</i>
SCCD	<i>Conservation Plans</i>
	<i>Dairy Nutrient Management Plans</i>
	<i>Cost Share Projects</i>

### NOTE:

Along with stewardship of natural resources, self-reliance, personal privacy, and private property rights are all important cultural attitudes among Stevens County farmers and ranchers. As a result, many stewardship practices are implemented without participation in grant programs or any sort of formal record-keeping.



**Severe bank erosion before stewardship project**

Photo courtesy of SCCD



**Re-sloped bank with stabilized toe**

Photo courtesy of SCCD

**Table 4-3: Examples of Voluntary Stewardship Practices in Stevens County**

Example Practice	Amount applied 2011-2016	Description	Effect on Critical Area Functions and Values <sup>1</sup>			
			Water Quality	Hydrology	Soil Health	Habitat
Nutrient Management	1,516 acres	Managing the amount, source, placement, and timing of plant nutrients and soil amendments.	Proper application of manure, compost, and bio-solids should reduce or eliminate pathogens and/or chemicals from moving into surface water.	NA	Management of pH and applying sufficient nutrients will maintain or enhance biomass production.	Management enhances cover/shelter conditions.
Integrated Pest Management	9,051 acres	Managing pesticide use.	IPM mitigation practices can reduce the risks from solution and adsorbed runoff losses to improve surface water quality.	NA	IPM mitigation practices can reduce risks to solution and adsorbed runoff losses.	IPM mitigation practices can reduce negative impacts to fish and wildlife water quantity and quality.
Managed grazing	8,916 acres	Managing the harvest of vegetation with grazing and/or browsing animals.	Reduced runoff, grazing management, and properly placed and designed watering facilities will reduce risk of movement of pollutants in surface waters.	There will be increased infiltration, increased available water, and extended interflow yield.	Improving the health and vigor of plant communities will increase vegetative cover and/or water infiltration and decrease erosion by water.	Management can restore desired habitats/space.
Watering Facility	28 facilities	A permanent or portable device to provide an adequate amount and quality of drinking water for livestock and or wildlife.	When used in place of an in-stream water source, this action decreases manure deposition in stream.	The action may result in increased infiltration (less surface flows) due to retarding flows with better vegetative cover.	Increased vegetated cover due to better distribution of water reduces soil erosion.	The action supplies water to alternative locations hence protecting stream and riparian areas.
Streambank and Shoreline Protection	700 feet	Treatment(s) used to stabilize and protect banks of streams, constructed channels, and shorelines.	The action includes vegetation along stream courses (shade) and reduces sediment in surface water.	Stream channel is stabilized.	Stream banks are stabilized, reducing soil loss due to erosion.	Riparian and instream improvements will improve water quality, for aquatic and riparian species and their habitats.

<sup>1</sup> Based on 2016 NRCS CPPE Spreadsheet

#### 4.4.1 NRCS EQIP, WHIP and SCCD Assisted Practices

Individual practices implemented with assistance from NRCS or SCCD are generally documented somewhere and can be reviewed and summarized. While this analysis does not represent a complete picture of the stewardship activities in Stevens County, it serves as a measurable baseline for setting participation goals and benchmarks for VSP. Table 4-4 lists key stewardship practices that are commonly applied in Stevens County and related to the protection of critical area functions and values.

**Table 4-4: Key Stewardship Practices Baseline**

Management Type	NRCS Code	Practice Name	Average Annual Implementation since July 22, 2011
Weed & Pest Control	595	Integrated Pest Management	1,839 ac
	315	Herbaceous Weed Control	
Water	449	Irrigation Water Management	115 ac
	442	Sprinkler System	
	NA	Stream Channel Maintenance and Improvement	
Soil	580	Streambank and Shoreline Protection	130 ft. 14 ac
	328	Conservation Crop Rotation	
	340	Cover Crop	
	345	Residue and Tillage Management, Reduced Till	
	329	Residue and Tillage Management, No Till	
Nutrients	590	Nutrient Management	281 ac
Livestock	528	Prescribed Grazing	1,660 ac 5 facilities
	472	Access Control	
	614	Watering Facility	
Habitat	643	Restoration and Management of Rare or Declining Habitats	953 ac 8 W.L. structures
	666	Forest Stand Improvement	
	645	Upland Wildlife Habitat Management	
	612	Tree/Shrub Establishment	
	327	Conservation Cover	
	659	Wetland Enhancement	
	395	Stream Habitat Improvement and Management	
	649	Structures for Wildlife	

#### 4.4.2 NRCS Conservation Stewardship Program

The Conservation Stewardship Program, or CSP, is a voluntary program that provides technical assistance and funding for agricultural and forest landowners to develop plans for conservation, management, and enhancement activities. Since 2011, enrollment in CSP contracts in Stevens County have occurred at the following levels:

2008 Farm Bill: 8,555 acres enrolled

2014 Farm Bill: 3,323 acres enrolled

## 4.5 Individual Stewardship Checklists

Individual VSP Stewardship Checklists will serve as the mechanism for direct VSP participation. These checklists will be used as a tool for individual participants to document their voluntary efforts to protect and enhance critical areas. The current version of the checklist is included in Appendix E, although further development of the checklist may occur during the implementation of this Work Plan.

### 4.5.1 Confidentiality of Stewardship Checklists

Protecting the confidentiality of participants is an essential part of the administration of Stewardship Checklists. VSP is focused at the watershed scale rather than the individual parcel scale, therefore there is no need for analysis of practices at the individual parcel level. Keeping this in mind, Stewardship Checklists will be administered in a way that allows individual participants to remain anonymous while providing summary statistics for each watershed. To avoid disclosure requirements under current Washington state law<sup>1</sup>, participants will retain their completed Stewardship Checklists, and will only be asked to supply numerical, non-identifying data to VSP technical staff. If technical staff do not collect identifying information, then there is no information to provide in the event of a request.

### 4.5.2 Developing Baselines

No baseline figures currently exist for implementation of VSP Stewardship Checklists. Following the approval and implementation of the VSP Work Plan, participation baselines will be developed over a number of years. See Table 6-1 for more detail on how baselines will be developed.

### 4.5.3 Relationship to Farm Plans, Conservation Plans, or other individual stewardship plans

RCW 36.70A.750 states that “agricultural operators implementing an individual stewardship plan consistent with a work plan are presumed to be working toward the protection and enhancement of critical areas.” For the purposes of the Stevens County VSP Work Plan, an “individual stewardship plan” could be a VSP Stewardship Checklist (direct participation), or some other plan that is consistent with the Work Plan (indirect participation). Many agricultural operators may have already completed some sort of plan or certification related to environmental stewardship and protection of critical areas. Examples include “Conservation Plans” or “Farm Plans” through NRCS or SCCD, Dairy Nutrient Management Plans, Global G.A.P. certification, and organic certification. Levels of participation in these plans and certifications will also be tracked alongside direct participation in VSP Stewardship Checklists.

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<sup>1</sup> RCW 42.56.070 (1)

# 5 Goals and Benchmarks

The VSP statute states that the Work Plan must

*“Create measurable benchmarks that, within ten years after the receipt of funding, are designed to result in (i) the protection of critical area functions and values and (ii) the enhancement of critical area functions and values through voluntary, incentive-based measures;”*

Goals are overall desired outcomes related to protection and enhancement of critical areas and maintenance of agricultural viability. Benchmarks are levels of voluntary participation and practice implementation that, when measured over time, will be used to determine if the Stevens County VSP is achieving protection and enhancement of critical areas and maintaining agricultural viability.

## 5.1 Overall Protection and Enhancement Goals

### *Overall Goal 1: Protect critical areas through voluntary measures*

This Work Plan must demonstrate how Stevens County will protect critical areas with regard to agricultural activities. Using the definition in the VSP legislation,

*‘Protect’ or ‘protecting’ means to prevent the degradation of functions and values existing as of July 22, 2011.” (RCW 36.70A.703)*

The terms “protection” and “degradation” in the context of critical areas and agricultural activities were interpreted in the Washington Supreme Court’s *Swinomish* decision<sup>1</sup>. The 2011 VSP statute operates on the *Swinomish* court’s protection standard of “no new harm” to critical areas, and sets the baseline critical area condition as the conditions existing as of July 22, 2011. The statute also states that these protection standards are to be satisfied at the aggregate or “watershed scale.” The VSP statute encourages, but does not require, enhancement of critical areas above and beyond the 2011 baseline conditions. Although this plan is designed to maximize voluntary protection measures to the extent that critical area enhancements will likely occur, it is only required to prevent new harm to the critical area conditions that existed on July 22, 2011.

### *Overall Goal 2: Enhance critical areas through voluntary measures*

Promote participation in voluntary practices to improve the processes, structure, and functions existing, as of July 22, 2011, of ecosystems and habitats associated with critical areas.

### *Overall Goal 3: Maintain and Enhance the Viability of Agriculture in Stevens County*

The Stevens County VSP Workgroup has used the VSP planning process to design additional goals and benchmarks to demonstrate that agricultural viability is maintained.

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<sup>1</sup> *Swinomish Indian Tribal Community v. Ecology*, 178 Wn.2d 571, 311 P.3d 6 (2013)

## 5.2 Critical Area Protection and Enhancement Goals

The goals and benchmarks for protection and enhancement of critical area functions and values are organized by critical area type. In general, the requirement to *protect* and *enhance* is addressed by benchmarks to *maintain* or *increase* levels of voluntary stewardship implementation.

### 5.2.1 Wetland Goals and Benchmarks

<b>Goal 1: Protect / Enhance Wetland Functions and Values</b> At the watershed scale and in relation to agricultural activities, prevent degradation and promote voluntary enhancement of wetland functions and values existing as of July 22, 2011.	
<b>Key Functions and Values</b>	
Water Quality	<ul style="list-style-type: none"> <li>Erosion control, the reduction of siltation.</li> <li>Reduction of surface water pollution through filtration.</li> </ul>
Hydrology	<ul style="list-style-type: none"> <li>Flood storage, moderating surface and storm water flows.</li> <li>Areas of recharge and discharge for lakes and groundwater aquifers.</li> </ul>
Habitat	<ul style="list-style-type: none"> <li>Prime habitat for aquatic, terrestrial, and avian species.</li> </ul>
<i>NOTE: The presence of wetlands and the existence of these functions and values must be verified on a site-by-site basis. Many areas where agricultural activities occur in Stevens County are seasonally wet, but may not be wetlands or are previously drained and farmable wetlands. In these cases, agriculture is unlikely to degrade functions and values.</i>	
Protection Objective	Key Practices <sup>1</sup>
Promote participation in voluntary practices that protect and enhance surface and groundwater quality.  <b>Monitoring Check:</b> Page 53, Table 6-1: P1-P6	<ul style="list-style-type: none"> <li>Nutrient Management</li> <li>Pest Management</li> </ul>
Promote participation in voluntary practices that protect and enhance the water storage and recharge functions of wetlands.  <b>Monitoring Check:</b> Page 53, Table 6-1: P2, P5	<ul style="list-style-type: none"> <li>Irrigation Management</li> <li>Wetland Enhancement</li> </ul>
Promote participation in voluntary practices enhance the habitat functions of wetlands.  <b>Monitoring Check:</b> Page 53 Table 6-1: P5, P6	<ul style="list-style-type: none"> <li>Watering Facilities</li> <li>Managed Grazing</li> <li>Access Control</li> <li>Conservation Cover</li> </ul>
<b>Effectiveness Monitoring:</b> Aerial imagery analysis detailed in Table 6-2 on page 54, M2.	

<sup>1</sup> Identified using NRCS CPPE tool and Workgroup input.

### 5.2.2 Fish and Wildlife Habitat Conservation Area Goals

<b>Goal 2: Protect / Enhance FWHCA Functions and Values</b> At the watershed scale and in relation to agricultural activities, prevent degradation and promote voluntary enhancement of FWHCA functions and values existing as of July 22, 2011.	
Key Functions and Values	
Water Quality	<ul style="list-style-type: none"> <li>• Sediment Filtration</li> <li>• Temperature Protection</li> <li>• Nutrient Reduction</li> <li>• Dissolved Oxygen Levels</li> </ul>
Hydrology	<ul style="list-style-type: none"> <li>• Water storage and transport, retention of base flows.</li> </ul>
Habitat	<ul style="list-style-type: none"> <li>• Provide primary habitat for aquatic, avian, and terrestrial species.</li> <li>• Support life cycle of species designated as endangered, threatened, or sensitive (bald eagle, common loon, lynx, fisher, gray wolf, grizzly bear).</li> </ul>
Protection Objective	Key Practices
Promote participation in voluntary practices that protect and enhance surface and groundwater quality.  <b>Monitoring Check:</b> Page 53, Table 6-1: P1-P6	<ul style="list-style-type: none"> <li>• Nutrient Management</li> <li>• Pest Management</li> <li>• Conservation Cover</li> <li>• Stream Habitat Improvement</li> </ul>
Promote participation in voluntary practices that protect and enhance the water conveyance functions and base flows of streams and rivers.  <b>Monitoring Check:</b> Page 53, Table 6-1: P2	<ul style="list-style-type: none"> <li>• Irrigation Management</li> <li>• Sprinkler systems</li> </ul>
Promote participation in voluntary practices that enhance upland and aquatic habitats for terrestrial, avian, and aquatic species.  <b>Monitoring Check:</b> Page 53, Table 6-1: P5, P6	<ul style="list-style-type: none"> <li>• Upland Wildlife Habitat Management</li> <li>• Watering Facilities</li> <li>• Managed Grazing</li> <li>• Stream Habitat Improvement</li> </ul>
<b>Effectiveness Monitoring:</b> Aerial imagery analysis detailed in Table 6-2 on page 54, M3.	

#### 5.2.4 Critical Aquifer Recharge Area Goals

<b>Goal 3: Protect / Enhance CARA Functions and Values</b> At the watershed scale and in relation to agricultural activities, prevent degradation and promote voluntary enhancement of CARA functions and values existing as of July 22, 2011.	
Key Functions and Values	
Water Quality	<ul style="list-style-type: none"> <li>• Aquifers used for potable water.</li> </ul>
Hydrology	<ul style="list-style-type: none"> <li>• Recharges groundwater resources.</li> </ul>
Protection Objective	Key Practices
Promote participation in voluntary practices that protect and enhance groundwater quality and prevent contamination of drinking water.  <b>Monitoring Check:</b> Page 53, Table 6-1: P1-P6	<ul style="list-style-type: none"> <li>• Nutrient Management</li> <li>• Pest Management</li> <li>• Herbaceous Weed Control</li> </ul> <i>Well testing is also a potential strategy to protect groundwater quality in CARA</i>
Promote participation in voluntary practices that protect and enhance the groundwater recharge functions of critical aquifer recharge areas.  <b>Monitoring Check:</b> Page 53, Table 6-1: P2	<ul style="list-style-type: none"> <li>• Irrigation Management</li> <li>• Sprinkler systems</li> <li>• Water rights</li> </ul> <i>Formation of a Stevens County Water Trust to protect agricultural water rights is also a potential strategy to protect water recharge CARAs</i>
<b>Effectiveness Monitoring:</b> Communication with Environmental Health Department regarding groundwater contamination. See Table 6-2 on page 54, M1.	

### 5.2.5 Frequently Flooded Area Goals

<b>Goal 4: Protect / Enhance Frequently Flooded Area Functions and Values</b> At the watershed scale and in relation to agricultural activities, prevent degradation and promote voluntary enhancement of FFA functions and values existing as of July 22, 2011.	
Key Functions and Values	
Water Quality	<ul style="list-style-type: none"> <li>Affects surface and groundwater quality by moving sediments and other materials based on timing and magnitude of flows.</li> </ul>
Hydrology	<ul style="list-style-type: none"> <li>Temporary flood storage and conveyance.</li> </ul>
Soil Health	<ul style="list-style-type: none"> <li>Potential for soil erosion during flood events based on soil characteristics and vegetative conditions.</li> </ul>
Protection Objective	Key Practices
Promote participation in voluntary practices that protect and enhance surface water quality and limit movement of sediment and other materials into water bodies during flood events.  <b>Monitoring Check:</b> Page 53, Table 6-1: P1-P6	<ul style="list-style-type: none"> <li>Nutrient Management</li> <li>Pest Management</li> <li>Access Control</li> <li>Managed Grazing</li> </ul>
Promote participation in voluntary practices that protect and enhance the flood storage and conveyance functions of Frequently Flooded Areas.  <b>Monitoring Check:</b> Page 53, Table 6-3: Performance Indicator 5b.	<ul style="list-style-type: none"> <li>Stream channel maintenance and improvement</li> </ul>
Promote participation in voluntary practices to protect and enhance soil health and prevent soil erosion during flooding events.  <b>Monitoring Check:</b> Page 53, Table 6-1: P3, P6	<ul style="list-style-type: none"> <li>Streambank and shoreline protection</li> <li>Cover Crop</li> <li>Watering Facility</li> <li>Access Control</li> <li>Stream Habitat Improvement and Management.</li> </ul>
<b>Effectiveness Monitoring:</b> Aerial imagery analysis detailed in Table 6-2 on page 54, M4.	

### 5.2.7 Geologically Hazardous Area Goals

<b>Goal 5: Protect / Enhance Geologically Hazardous Area Functions and Values</b> At the watershed scale and in relation to agricultural activities, prevent degradation and promote voluntary enhancement of GHA functions and values existing as of July 22, 2011.	
<b>Key Functions and Values</b>	
Water Quality	<ul style="list-style-type: none"> <li>• Risk of deposition of sediment in waterways due to erosion or mass failure of geologically hazardous areas.</li> </ul>
Soil Health	<ul style="list-style-type: none"> <li>• Potential for erosion or mass movement due to soil composition and vegetative conditions.</li> </ul>
Protection Objective	Key Practices
Promote participation in voluntary practices that protect and enhance surface water quality and limit movement of sediment and other materials into water bodies.  <b>Monitoring Check:</b> Page 53, Table 6-1: P1-P6	<ul style="list-style-type: none"> <li>• Nutrient Management</li> <li>• Pest Management</li> <li>• Access Control</li> <li>• Managed Grazing</li> </ul>
Promote participation in voluntary practices to protect and enhance soil health and prevent soil erosion on steep slopes.  <b>Monitoring Check:</b> Page 53, Table 6-1: P3, P5, P6	<ul style="list-style-type: none"> <li>• Cover Crop</li> <li>• Access Control</li> <li>• Managed Grazing</li> <li>• Tree/Shrub Establishment</li> <li>• Conservation Cover</li> </ul>
<b>Effectiveness Monitoring:</b> Aerial imagery analysis detailed in Table 6-2 on page 54, M5.	

## 5.3 Participation Benchmarks for Critical Areas Protection

The following methodology was used to set participation benchmarks:

- Connect practices to critical area functions and values
- Inventory historic participation in stewardship practices
- Set participation benchmarks based on estimated annual disenrollment

### 5.3.1 *Connecting Practices to Critical Area Functions*

Stewardship practices by agricultural operators have direct and indirect effects on critical area functions and values, as described in Chapter 4. Practices were connected to critical area functions and values using the NRCS CPPE tool. CPPE scores range from 5 to -5, with positive scores denoting a beneficial effect, and negative scores having an adverse effect. The CPPE was used as a tool to identify the key practices that were incorporated into the participation benchmarks. Input from the VSP Workgroup was also important in identifying key practices.

### 5.3.2 *Inventory of Participation in Stewardship Practices*

An inventory of participation in agricultural stewardship practices was conducted to create the participation benchmarks. The participation data includes practices applied with assistance from NRCS and SCCD. Agricultural operators in Stevens County implement a wide variety of stewardship practices that protect and enhance the functions and values of critical areas. However, to achieve simplicity and repeatability, a subset of core stewardship practices were selected to set participation benchmarks. For consistency, the stewardship practices are identified by NRCS practice codes, although they are not necessarily funded and implemented through NRCS programs.

### 5.3.3 *Setting Participation Benchmarks based on Estimated Disenrollment*

Participation benchmarks were set based on estimated annual disenrollment from stewardship practices. A certain percentage of agricultural operators who enroll in stewardship practices decide to remove or discontinue those practices in the future. Estimated annual disenrollment rates were applied to the stewardship practice implementation totals to generate an estimate of annual disenrollment. The estimated annual disenrollment represents the minimum amount of enrollment in stewardship practices that is needed each year to keep pace with the amount of practices that are discontinued. For practices that are easier to remove or discontinue, such as nutrient management or cover crops, a disenrollment rate of 6% was used. For more permanent practices such as watering facilities, a rate of 3% was used.

### 5.3.4 *Types of VSP Participation*

- Direct Participation:** Engage in stewardship practices directly facilitated by VSP checklist.
- Indirect Participation:** Participate in existing stewardship programs. Data tracked by VSP.
- Non-participation:** This includes people who do not participate in any type of formal stewardship or conservation program. This work plan aims to open the door for non-participants to voluntarily report their existing stewardship practices or engage in new practices, thus transitioning to one of the above participation categories.

Table 5-1: Voluntary Participation Benchmarks

Key Stewardship Practices <sup>1</sup>			Historic NRCS Enrollment Data			Participation Benchmarks-Protection			Enhancement	
Management Type	NRCS Code	Practice Name	July 2011-2016	Average Annual Implementation	Estimated Annual Disenrollment <sup>2</sup>	Objective	2017 -2021 Cumulative Target Level (disenrollment x 10)	2022-2026 Cumulative Target Level (disenrollment x15)	2021 Objective	2026 Objective
P1: Weed & Pest Control	595	Integrated Pest Management <sup>5</sup>	9,931 ac	1,839 ac	110 ac (6%)	No Net Loss in Acres Managed under Pest & Weed Control Practices	1,103 ac	1,655 ac	Focus and maximize voluntary incentive programs to achieve participation beyond 2021 target levels.	Focus and maximize voluntary incentive programs to achieve participation beyond 2026 target levels.
	315	Herbaceous Weed Control <sup>5</sup>								
P2: Water	449	Irrigation Water Management <sup>7</sup>	623 ac	115 ac	3 ac (3%)	No Net Loss in Acres Managed under Water Conservation Practices	35 ac	52 ac		
	442	Sprinkler System <sup>7</sup>	0 ft							
	NA	Stream Channel Maintenance and Improvement <sup>4</sup>								
P3: Soil	580	Streambank and Shoreline Protection <sup>4</sup>	700 ft	130 ft.	4 ft. (3%)	No Net Loss in acres/feet of soil management practices	39 ft.	58 ft.		
	328	Conservation Crop Rotation	73 ac	14 ac	1 ac (6%)		8 ac	12 ac		
	340	Cover Crop								
	345	Residue and Tillage Management, Reduced Till <sup>5</sup>								
	329	Residue and Tillage Management, No Till <sup>5</sup>								
P4: Nutrients	590	Nutrient Management <sup>3,4,5</sup>	1,516 ac	281 ac	17 ac (6%)	No net loss of acres under nutrient management	168 ac	253 ac		
P5: Livestock	528	Prescribed Grazing <sup>5,6</sup>	8,966 ac	1,660.39 ac	100 ac (6%)	No net loss of watering facilities or acres under livestock management practices	498 ac	747 ac		
	472	Access Control <sup>4,5,6</sup>		5 fac.	0.2 fac. (3%)		2 fac.	2 fac.		
	614	Watering Facility <sup>4,5,6</sup>	28 WF							
P6: Habitat	643	Restoration and Management of Rare or Declining Habitats	5,148 ac	953 ac	29 ac (3%)	No net loss of acres managed under wildlife habitat practices or loss of structures for wildlife	286 ac	429 ac		
	666	Forest Stand Improvement <sup>6</sup>	41 struct.	8 struct.	0.2 struct. (3%)		2 struct.	4 struct.		
	645	Upland Wildlife Habitat Management								
	612	Tree/Shrub Establishment <sup>4</sup>								
	327	Conservation Cover								
	659	Wetland Enhancement <sup>4</sup>								
	395	Stream Habitat Improvement and Management <sup>4,8</sup>								
	649	Structures for Wildlife <sup>9</sup>								
Enhancement	342	Critical Area Planting	No documented implementation 2011 - 2016. Any future implementation is considered enhancement			Voluntary Enhancement Measures	>0 acres	Based on 2017-2021 enrollment	All implementation counts as enhancement.	All implementation counts as enhancement.
	393	Filter Strip <sup>5</sup>								
	412	Grassed Waterway <sup>5</sup>								
	391	Riparian Forest Buffer <sup>4,5,8</sup>								
	390	Riparian Herbaceous Cover <sup>8</sup>								
NEW Enrollment	NA	VSP Checklist Participation	No current enrollment data, benchmark will be developed after year 5 (2021)			Generate new participation in stewardship activities facilitated by checklists. Retain checklist participants over time.	> 0 checklists filled out by new participants (not enrolled in an existing conservation program). Checklist retention goal developed by 2021.	Based on 2017 -2021 participation	NA	NA

NOTES:

<sup>1</sup>Additional stewardship practices are implemented in Stevens County, but are not factored into benchmarks. A comprehensive review of all stewardship practices implemented will take place at VSP reporting intervals to look for trends and opportunities. The practices listed in this table are subject to change.

<sup>2</sup>Annual disenrollment is estimated based on NRCS practice data since 2006. Practices that are easier to remove have 6% estimated annual disenrollment. Practices that are more difficult to remove have 3%. These disenrollment figures were adapted from the Grant and Whitman County VSP Work Plans.

**EXISTING WATERSHED PLAN CROSSWALK:**

<sup>3</sup> Colville River Watershed Fecal Coliform Bacteria TMDL Detailed Implementation Plan

<sup>4</sup> Spokane River Dissolved Oxygen TMDL

<sup>5</sup> Little Spokane River Fecal Coliform Bacteria, Temperature, and Turbidity TMDL

<sup>6</sup> Colville National Forest Temperature, Bacteria, pH, and Dissolved Oxygen TMDL

<sup>7</sup> Lower Spokane Watershed Plan

<sup>8</sup> Management Recommendations for Washington’s PHS, Volume 2: Riparian

<sup>9</sup> Management Recommendations for Washington’s PHS, Volume 4: Birds

## 5.4 Agricultural Viability Goals and Benchmarks

RCW 36.70A.720 (1) states that the work plan must be developed to “protect critical areas while maintaining the viability of agriculture in the watershed.” This section describes how this plan aims to maintain the viability of agriculture.

### 5.4.1 Agricultural Viability Planning Process

The VSP workgroup engaged stakeholders from multiple sectors of the agricultural economy in the county to obtain input on the key considerations and needs regarding agricultural viability. Workgroup members also evaluated the strengths, weaknesses, opportunities, and threats facing the agricultural sector in Stevens County. Relevant qualitative and quantitative data was also analyzed to assess key themes and trends regarding agriculture in Stevens County. This information was analyzed collectively to develop the following Agricultural Viability Plan to be implemented and monitored as part of the VSP planning effort.

To ensure that agricultural viability was addressed effectively by this plan, the workgroup worked to define agricultural viability, establish goals, and develop benchmarks and indicators to monitor the goals.

### 5.4.2 Defining Agricultural Viability

**Viability of Agriculture** is not defined in the VSP statute, but dictionary definitions of *viable* indicate that it means something is possible and worthwhile:

- capable of being done in a practical and useful way<sup>1</sup>
- ability to work as intended or to succeed<sup>2</sup>
- worth doing<sup>3</sup>

This broad definition works well in Stevens County, which is home to a diverse range of agricultural practitioners with varying goals and motivations. For example, some small-scale or hobby farmers may not require that their activities are economically worthwhile to be considered viable. Instead, agriculture may be considered worthwhile as a cultural pastime, a means of personal enjoyment, or a way to have homegrown food.

Many farmers and ranchers depend on agricultural activities to make a living and require some sort of financial returns over time in order to continue their operations. For commercially-focused producers, agricultural viability might be further defined as the ability of a farmer or group of farmers to:

- productively and continuously farm on a given piece of land or in a specific area,
- maintain an economically viable farm business,
- keep the land in agriculture long-term, and
- steward the land so it will remain productive into the future.

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<sup>1</sup> <http://www.vocabulary.com/dictionary/viability>

<sup>2</sup> <http://dictionary.cambridge.org/us/dictionary/english/viability>

<sup>3</sup> <http://www.macmillandictionary.com/us/dictionary/american/viable>

#### *5.4.4 Goal 1: A strong link between agricultural producers and the ag land base.*

When considering the long-term viability of agriculture, producers and land are co-dependent: agriculture is not possible without adequate land, and agricultural land has limited benefits without farmers and ranchers who are willing and able to use it. As a result, there is a need to consider the preservation of agricultural land and the encouragement of agricultural producers as a joint effort. To promote agricultural viability, this plan aims to address producers and land on a combined basis and emphasize a strong link between the two.

For agriculture to remain viable in Stevens County, adequate land must be available so that agricultural activities can be conducted at an economically worthwhile scale. Urbanization, real estate markets, rising land values, and taxation put increasing pressure on rural agricultural lands, and there is often a need for strategic action to ensure that adequate agricultural land continues to exist. The ability of producers to achieve profits is a key component in preserving agricultural land and assuring continued investment in stewardship practices. Efforts to improve the financial climate of agriculture by increasing profitability through reduced production costs and lower tax burdens will enhance the continuation of agriculture as a viable industry and, consequently, the preservation of agricultural land and additional environmentally beneficial stewardship practices.

Voluntary conservation programs, agricultural conservation easements, long-term leases, infrastructure funding, marketing programs, right-to-farm ordinances, and regulatory reform are important elements in a comprehensive approach to improve the agricultural economy and maintain a stable agricultural land base. Further preservation of land available for agricultural uses can be done through the promotion of various farmland preservation tools, including estate planning, succession planning, new and innovative farming opportunities, and a commitment to enhanced agricultural zoning.

In conjunction with land availability, farmers and ranchers must be available and practically able to conduct agricultural activities on the existing land. Feedback from agricultural stakeholders in Stevens County indicates that a significant amount of agricultural land in Stevens County is either not used to its full productive potential, or not actively used for agriculture at all. Many young people or new entrants to the county are interested in agriculture, but lack the land, resources, and support network to begin farming successfully. Additional ways to connect people interested in farming to available opportunities and to keep lands owned by absentee landowners, retired farmers, or government agencies in production are needed.

#### *5.4.5 Goal 2: A stable and secure base of water resources*

Over the past several years, regulatory uncertainty over water availability has created economic challenges in Stevens County. Water needs to be available in sufficient quantities and at the right times in order to ensure viable agriculture in Stevens County. Programs that promote agricultural access to water supplies, a stable and fair legal system to protect water rights, and provisions to secure water and improve water right reliability during times of drought are important components of a productive agricultural land base. To ensure that there is adequate water available for viable agriculture in Stevens County, the best case scenario would be preservation of all agricultural water rights for agricultural use, with a waivers system for non-use of agricultural water rights for specific reasons.

#### *5.4.6 Goal 3: Useable agricultural production and market infrastructures*

In order for agriculture to remain viable in Washington State, the infrastructure that supports it must be in place and well maintained. Agricultural irrigation and drainage districts, utilities,

processing facilities, transportation and port systems, and market access systems must remain accessible and affordable to the agricultural community. This includes the work of commodity commissions and other programs in developing and promoting local and export agricultural market opportunities, as well as programs to reduce trade barriers and support Ag-friendly trade agreements. Agricultural operators also require readily available access to accurate and timely information to meet ongoing changes in the marketplace. In addition, agricultural equipment and supplies need to be available to the local agricultural producer.

#### *5.4.7 Goal 4: Maximize education, technical support, and outreach*

The average age of an agricultural operator in Stevens County is over 60 years old, and many operations are in the process of transitioning to the next generation of farmers and ranchers. Estate and succession planning is imperative to furthering the viability of agricultural operations. Promoting and supporting efforts like local farm-focused estate planning workshops can be a benefit to not only an aging generation of farm owners, but to new and beginning farmers as well. Newer farmers - those at the beginning of their career that are seeking farming opportunities - can meet older landowners in an atmosphere where all parties are learning about planning challenges and how to overcome them. When new and younger operators do get involved in agriculture, for them to be viable in their operations they must be educated on the technical and economic aspects of farm operations and practices as well as on governmental programs, permitting, and procedures that may affect their operation. Labor apprenticeships such as those implemented by the State of Washington are a method for growers to secure seasonal labor and help train the next generation of farmers.

Many conservation practices, as set out by the Natural Resource Conservation Service and others, are supportive of agricultural viability. Through technical assistance provided by local conservation districts, WSU Extension and similar programs, farmers should be encouraged to institute conservation practices to ensure the continued capability of their land to produce crops and to conserve natural resources. Balance should be sought between conservation enhancement programs and the ability of a landowner to choose the use of their land. Federal, state and local research and educational efforts that support agricultural viability should be fostered and encouraged.

#### *5.4.8 Goal 5: A welcoming business environment*

The VSP Statute has built-in elements that implicitly help to promote a welcoming business environment by preserving flexibility for landowners. Nothing in the VSP statute requires participation by individual agricultural operators- the program operates on voluntary basis only. Furthermore, the statute clearly states that the program does not grant counties or state agencies additional authority to regulate critical areas on lands used for agricultural activities.

To maintain agricultural viability, state and local governments should look for opportunities to partner with the agricultural community on efforts and incentives to improve both agricultural viability and the natural environment. Farm operators understand the need for reasonable regulation, but regulation must also take into account the economics of running a viable agricultural operation. Agricultural operators deal with low margins and other economic factors including cost of production that can make viability precarious for them. To reduce time and cost impacts, governmental regulations and permit processes affecting agricultural producers should be predictable, affordable and not overly burdensome. Property taxes, zoning ordinances, nutrient management regulations, and air and water quality regulations should be enacted with viable agriculture in mind.

#### 5.4.9 Agricultural Viability Goals and Objectives

Viability Goal	Performance Objectives	Performance Metrics
Strong link between agricultural producers and ag land base (land is available, farmers are using it).	Agricultural practices continue to occur on the landscape in Stevens County at similar levels.	Change in agricultural landcover.
	Residents of Stevens County continue to participate in agricultural activities and economic activity is generated.	Number of farms, land in farms, sales of agricultural products, economic impact of agriculture.
	Preservation mechanisms for agricultural land continue to exist.	Acres in conservation easements or similar land preservation arrangements
	Right to Farm Ordinance continues to exist.	Existence of Right to Farm Ordinance in county.
Stable and secure base of water resources for agriculture.	Water rights transfer assistance continues to exist	Availability of water rights transfer assistance
Improved agricultural market infrastructure and services.	Ag related businesses and services exist within the county.	Number of ag related businesses and services that exist.
Education, training, and support for best management practices	Educational and technical assistance resources, programs, and events.	Number of available resources, programs, and events provided.
A welcoming business environment with flexibility for agricultural operators.	Improved understanding between agricultural operators and agency personnel.	Number of public forums/ meetings held to discuss key issues.
	Implementation of flexible, site-specific solutions to address maintenance and improvement of stream channels, flooding impacts, and bank erosion issues.	Types of practices that are permitted.
Protect private property rights	Voluntary approaches are used for environmental protection, rather than regulatory approaches.	Participation in stewardship practices and programs remains voluntary.

## 6 Monitoring and Adaptive Management

RCW 36.70A.720 (i) & (j) state that VSP Work Plans must:

*“Establish baseline monitoring for: (i) Participation activities and implementation of the voluntary stewardship plans and projects; (ii) stewardship activities; and (iii) the effects on critical areas and agriculture relevant to the protection and enhancement benchmarks developed for the watershed” and*

*“Conduct periodic evaluations, institute adaptive management, and provide a written report of the status of plans and accomplishments to the county and to the commission within sixty days after the end of each biennium.”*

The monitoring and adaptive management process outlined in this plan is designed to evaluate whether the goals and benchmarks of this Work Plan are being met and establish a process for necessary adjustments to assure that goals are met in the future. The monitoring and adaptive management process aims to accomplish the following:

- Clearly identify the monitoring questions that need to be answered
- Identify metrics that can be used to answer the questions on a repeatable basis
- Describe how the metrics will be analyzed in a simple, repeatable way
- Define the threshold for adaptive management
- Identify the parties responsible for taking monitoring and adaptive management actions

	<i><b>Participation Monitoring</b></i>	<i><b>Effectiveness Monitoring</b></i>
<b>Monitoring Question:</b>	Are voluntary stewardship practices being implemented at or above benchmark levels?	How are the functions and values of critical areas changing at the watershed scale in relation to agricultural activities?
<b>Metrics:</b>	<ul style="list-style-type: none"> <li>• Stewardship practice data</li> <li>• VSP checklists</li> <li>• Education and outreach events.</li> </ul>	Effectiveness Monitoring Indicator(s)
<b>Adaptive management:</b>	Additional outreach and education	Focused outreach related to identified critical area protection issues.
<b>Who is responsible:</b>	SCCD/ VSP Coordinator	SCCD/ VSP Coordinator

## 6.1 Participation Monitoring

The VSP statute requires monitoring of participation activities, stewardship activities, and the associated implementation of voluntary stewardship plans and projects. This monitoring information will be used to evaluate participation objectives. Participation monitoring will involve tracking of the following:

- Implementation of voluntary stewardship practices relevant to the participation benchmarks established in Chapter 5.
- Occurrence of relevant educational events, workshops, forums, farm tours and any other events that assist, encourage or improve voluntary stewardship efforts in the county.
- Participation in VSP Stewardship Checklists.
- Participation in farm planning or conservation planning as indicated by SCCD records.

## 6.2 Effectiveness Monitoring

The VSP statute requires monitoring of the effects on critical areas relevant to the protection and enhancement benchmarks set in the Work Plan. Effectiveness monitoring is used to assess the watershed-scale effects of agricultural activities by both VSP participants and non-participants on critical areas. This involves reviewing available data to assess critical area functions and values, to see if voluntary stewardship efforts are achieving intended outcomes. The analysis of monitoring data is focused at the watershed scale. To protect landowner privacy, monitoring data will not be summarized or reported at the parcel scale, and is not be used by any person or agency for regulatory purposes.

### 6.2.1 Effectiveness Monitoring Data

Effectiveness monitoring data is used to determine the need for adaptive management. Monitoring data sources were selected based on practicality, cost, availability, and relevance to key protection issues. Monitoring data sources and techniques may be added, adjusted, or removed as their usefulness becomes apparent or as new protection issues arise. New data sources and monitoring techniques must be approved by the VSP Workgroup before they are incorporated into the monitoring process. Monitoring data will be supplemented with ground-truthing to verify causes of change to critical area functions and values.

**Aerial imagery data** will be used to assess landscape attributes that relate to critical area functions and values. This may include changes in the extent, character, or vegetation associated with a particular critical area. The analysis will incorporate publicly available aerial imagery and GIS data pertaining to critical areas and agriculture. Analysis of aerial imagery will be conducted periodically based on available data and summarized at 5-year VSP reporting intervals. See table 6-2 and Appendix G for critical area-specific monitoring strategies.

**Groundwater quality data** will be used to monitor protection of the Critical Aquifer Recharge Area in Stevens County. Local agencies, such as Stevens County Environmental Health, already conduct groundwater monitoring within the CARA. This data can be examined to determine if degradations to groundwater quality are occurring. Monitoring will focus on incidents of groundwater degradation as reported by Stevens County Environmental Health or other agencies through their monitoring efforts within the CARA. Information on reported degradations will be collected and summarized by watershed basis.

**Additional data from outside monitoring programs** may be obtained by technical staff and shared with the workgroup, including information collected by state agencies as part of their monitoring programs. At periodic reporting intervals, technical staff may ask relevant agencies and groups to share watershed-scale monitoring information that pertains to critical area functions. The workgroup will review this information and determine how it relates to the goals and benchmarks of the VSP Work plan.

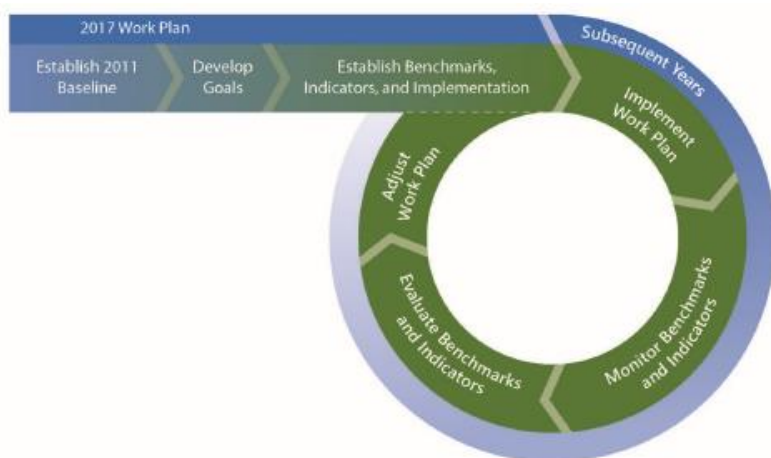
### 6.2.2 *Assisting State Agencies in their Monitoring Programs*

The workgroup and VSP technical staff may provide available information and assistance to help state agencies align their monitoring efforts with VSP monitoring and the goals and benchmarks of the VSP Work Plan within staff capabilities and any existing funding. Watershed-scale monitoring reports will be made available to agencies and VSP technical staff will provide assistance in interpreting the findings.

## 6.3 Adaptive Management

Adaptive management consists of a monitoring system coupled with a response system. Participation and effectiveness monitoring data will be considered in relation to predetermined adaptive management thresholds or “triggers”. If monitoring data indicates that an adaptive management trigger has been reached, then an established response will be carried out to address the issue. If adaptive management triggers are not reached, the monitoring system will simply be repeated at the defined intervals. Adaptive management triggers for participation are set at 120% of the protection requirement, so that management changes are proactive and address shortfalls before they occur. Adaptive management actions are non-regulatory processes such as further analysis of data, revision of goals and benchmarks, or additional outreach and education with landowners. Adaptive management would only be applied if monitoring results indicate that protection of critical area functions and values is not occurring.

**Figure 6-A: Adaptive Management System<sup>1</sup>**



Tables 6-1, 6-2, and 6-3 provide a monitoring and adaptive management framework for employees implementing the work plan. Additional worksheets and forms to assist in monitoring and reporting may be developed in the future and will be attached to the Work Plan.

<sup>1</sup> Adapted from Whitman County VSP Work Plan

Table 6-1: Participation Monitoring and Adaptive Management Process

Participation Type	NRCS Code	Stewardship Practice	Protection Metric (Annual) <sup>1</sup>	How to Check the Metric	Adaptive Management Trigger (120% of Protection Metric)	Adaptive Management Action	Who Monitors	How Often
P1: Weed & Pest Control	595	Integrated Pest Management	110 acres	Data from NRCS REAPData Team, SCCD Files.	132 acres	Outreach with agricultural operators	Conservation District	Every Year
	315	Herbaceous Weed Control		10% verified through landowner contact.				
P2: Water	449	Irrigation Water Management	3 acres	Data from NRCS REAPData Team, SCCD Files.	4 acres	Outreach with agricultural operators		
	442	Sprinkler System		10% verified through visual recognition.				
	NA	Stream Channel Maintenance and Improvement						
P3: Soil	580	Streambank and Shoreline Protection	4 ft. 1 acres	Data from NRCS REAPData Team, SCCD Files. 10% verified through visual recognition/landowner report	5 ft. 1.2 acres	Outreach with agricultural operators		
	328	Conservation Crop Rotation						
	340	Cover Crop						
	345	Residue and Tillage Management, Reduced Till						
P4: Nutrients	329	Residue and Tillage Management, No Till						
	590	Nutrient Management	17 acres	Data from NRCS REAPData Team, SCCD Files.	20 acres	Outreach with agricultural operators		
P5: Livestock	528	Prescribed Grazing	100 acres 0.2 watering facilities	Data from NRCS REAPData Team, SCCD Files.	120 acres 0.2 facilities	Outreach with agricultural operators		
	472	Access Control		10% verified through visual recognition.				
	614	Watering Facility						
P6: Habitat	643	Restoration and Management of Rare or Declining Habitats	29 acres 0.2 structures	Data from NRCS REAPData Team, SCCD Files.  10% verified through visual recognition.	34 acres 0.2 structures	Outreach with agricultural operators		
	666	Forest Stand Improvement						
	645	Upland Wildlife Habitat Management						
	612	Tree/Shrub Establishment						
	327	Conservation Cover						
	659	Wetland Enhancement						
	395	Stream Habitat Improvement and Management						
E1: Enhancement	649	Structures for Wildlife						
	342	Critical Area Planting	0 acres (no implementation needed to maintain protection)	Data from NRCS REAPData Team, SCCD Files. 10% verified through visual recognition.	0 acres implemented and lack of awareness or interest as reported by conservation district.	Outreach with landowners to investigate reasons for non-interest in these practices. Develop additional outreach and/or alternate practices on which to focus efforts.		
	393	Filter Strip						
	412	Grassed Waterway						
	391	Riparian Forest Buffer						
390	Riparian Herbaceous Cover							
Additional Participation Monitoring								
Educational Opportunities related to stewardship of critical areas and agriculture		<ul style="list-style-type: none"><li>Educational events</li><li>Workshops</li><li>Farm tours</li><li>Other forms of educational events and programs.</li></ul>	No existing benchmark	Communicate with WSU, SCCD, Farm Bureau, and other stakeholders regarding what events have taken place.	Less than three events in a two year VSP reporting period	Consult with stakeholder groups on what educational opportunities are needed, coordinate with WSU extension, SCCD, and other entities to see if additional material can be offered.	Conservation District	Every Year
Participation in Individual VSP Stewardship Checklists		Checklists Completed	(benchmark developed over 5 yrs. after checklist is distributed)	Collect and review records on checklist participation	<10checklists in first 5 yrs,decreasing trend vs. 5 yr. moving average in subsequent yrs.	Outreach with agricultural operators. See Appendix B on page 80 for outreach plans.	Conservation District	Every year
Participation in farm/conservation planning with SCCD		Number of Farm Plans	No existing benchmark	Review SCCD records	<5 plans in first 5 yrs. Significant decreasing trend vs. 5 yr. moving average in subsequent yrs.	Outreach with agricultural operators See Appendix B on page 80 for outreach plans.	Conservation District	Every year.

<sup>1</sup> Metric is calculated based on annual practices required to meet benchmark values identified in Table 5-1.

Table 6-2: Effectiveness Monitoring and Adaptive Management Process

	Critical Area Function	Protection Objective	Indicator Source Data	Performance Indicator	Adaptive Management Trigger	Adaptive Management Response	When	Who Monitors	Party Responsible for Action
M1	Critical Aquifer Recharge Areas (CARA)	Ensure that agricultural stewardship strategies and practices employed to protect and enhance groundwater quality and availability are effective.	Communication with Stevens County Environmental Health Department.  Review of any additional data pertaining to groundwater quality identified by technical staff or brought forward to the Workgroup by other organizations or agencies as part of their monitoring. (DOH & WSDA).	Reported incidents of groundwater contamination within the CARA in Stevens County as reported by Stevens County Environmental Health or other state agencies through their monitoring efforts within the CARA.	Reported degradation of groundwater within the CARA related to agricultural activities.	<ul style="list-style-type: none"><li>Investigate available information to assess whether issues are connected to agriculture.</li><li>If appropriate, focus outreach and education to promote relevant stewardship practices in the affected area.</li></ul>	Review and report at 2-year VSP reporting intervals.	SCCD, VSP Coordinator <sup>1</sup>	SCCD, VSP Coordinator, participating landowners
M2	Wetlands	At the watershed scale and in relation to agricultural activities, prevent degradation of wetland functions and values.	Existing aerial imagery (USDA NAIP imagery or LandsAT) and wetlands indicated by WDFW PHS <sup>2</sup> data, intersected with WSDA agriculture data.  Data, technology, or research from outside monitoring programs that is identified by technical staff or brought to the attention of the workgroup.	Ag-related changes in wetland extent or character, as identified using existing and publicly available data and aerial imagery. Review will focus on wetlands identified as priority habitats in PHS. Monitoring conclusions will be summarized at the watershed scale.	Watershed-scale analysis of aerial imagery indicates trend toward net loss of critical area functions and values and is supported by ground-truthing.	<ul style="list-style-type: none"><li>Investigate available information to determine the cause of decreases.</li><li>Communicate with conservation district staff or survey area if necessary to determine participation in stewardship.</li><li>Determine if current stewardship strategies are supporting protection goals.</li><li>Identify further stewardship strategies and opportunities with the Workgroup and conduct outreach and education to encourage implementation.</li></ul>	Review and report at 2-year VSP reporting intervals.		
M3	Fish and Wildlife Habitat Conservation Areas (FWHCA)	At the watershed scale and in relation to agricultural activities, prevent degradation of FWHCA functions and values.	Existing aerial imagery (USDA NAIP imagery or LandsAT) and DNR fishbearing Streams and relevant WDFW PHS data intersected with WSDA agriculture data.  Data, technology, or research from outside monitoring programs that is identified by technical staff or brought to the attention of the workgroup.	Ag-related changes in vegetative cover in riparian vegetation, as identified using existing and publicly available data and aerial imagery. Summarized at the watershed scale.					
M4	Frequently Flooded Areas (FFA)	At the watershed scale and in relation to agricultural activities, prevent degradation of FFA functions and values.	Existing aerial imagery (USDA NAIP imagery or LandsAT) and FEMA flood hazard data intersected with WSDA agriculture data.  Data, technology, or research from outside monitoring programs that is identified by technical staff or brought to the attention of the workgroup.	Ag-related changes in vegetative cover within floodplains, as identified using existing and publicly available data and aerial imagery. Summarized at the watershed scale.					
M5	Geologically Hazardous Areas (GHA)	At the watershed scale and in relation to agricultural activities, prevent degradation of GHA functions and values.	Existing aerial imagery (USDA NAIP imagery or LandsAT) and USDA SSURGO slope data intersected with WSDA agriculture data.  Data, technology, or research from outside monitoring programs that is identified by technical staff or brought to the attention of the workgroup.	Ag-related changes in vegetative cover on steep slopes, as identified using existing and publicly available data and aerial imagery. Summarized at the watershed scale.					

<sup>1</sup> Based on available funding

<sup>2</sup> PHS data is used only as a reference tool and not for measuring change in habitat extent over time

**Table 6-3: Agricultural Viability Monitoring and Adaptive Management**

Viability Goal	Performance Objectives	Performance Metrics	Monitoring Method	Adaptive Management Trigger	Adaptive management Action	Who Monitors	When
Strong link between agricultural producers and ag land base (land is available, farmers are using it).	Agricultural practices continue to occur on the landscape in Stevens County at similar levels.	Change in agricultural land cover.	Evaluate existing land cover data with USDA Cropscape tool to assess changes in agricultural land use (see baseline example in Table 2-1).	Significant decrease in presence of agricultural activities on the ground.	Coordinate with agricultural stakeholder groups/ individuals to assess why decreases are occurring and possible approaches to address it.	SCCD/VSP Coordinator	Every 5 Years
	Residents of Stevens County continue to participate in agricultural activities and economic activity is generated.	Number of farms, land in farms, sales of agricultural products, economic impact of agriculture.	Evaluate data from the USDA census of agriculture and available economic impact analysis tools through NRCS or other sources.	Significant decrease in farmland or agricultural product sales.	Coordinate with agricultural stakeholder groups/ individuals to assess why decreases are occurring and possible approaches to address it.		
	Preservation mechanisms for agricultural land continue to exist.	Acres in conservation easements or similar land preservation arrangements	Use existing available information to determine acres under conservation easements. Conduct monitoring in conjunction with watershed-scale aerial imagery analysis.	Significant threats to agricultural land base due to development.	Coordinate with stakeholders and land preservation organizations to review available opportunities.		
	Right to Farm Ordinance continues to exist.	Existence of Right to Farm Ordinance in county.	Communicate with County officials to ensure ordinance still exists	Right to Farm Ordinance no longer exists.	Work with officials and stakeholder groups to encourage a similar ordinance		
Stable and secure base of water resources for agriculture.	Water rights transfer assistance continues to exist	Stevens County Water Conservancy Board	Communicate with Water Conservancy Board to ensure water rights transfer assistance is available	Water Rights Transfer Assistance no longer exists.	Work with stakeholders and local officials to encourage continuation of water rights transfer assistance program.		
Improved agricultural market infrastructure and services.	Ag related businesses and services exist within the county.	Volume of economic activity of ag related businesses and services.	Compare available economic impact analysis data or Department of Revenue data to baseline.	Significant decrease in overall number of businesses and services, or loss of sole business or service serving a particular market sector	Coordinate with agricultural stakeholder groups/ individuals to assess why decreases are occurring and possible approaches to address it.		
Education, training, and support for best management practices	Educational and technical assistance resources, programs, and events.	Number of available resources, programs, and events provided.	Communicate with SCCD, WSU Extension, Farm Bureau, and other groups to assess available programs and number of events held.	Significant decrease in resources or programs available, significant decrease in events held or in participation in events held.	Coordinate with agricultural stakeholder groups/ individuals to determine what additional education and assistance they need.		
A welcoming business environment with flexibility for agricultural operators.	Improved understanding between agricultural operators and agency personnel.	Number of public forums/ meetings held to discuss key issues. Workgroup participates in/ supports efforts (state level) to improve flexibility.	Keep records of public forums or meetings that are held by County, SCCD, and WSU.	Lack of opportunities for discourse between ag community and agency personnel	Coordinate with VSP staff, County officials, agency personnel, and ag stakeholders to facilitate additional communication and/or meetings.		
	Implementation of flexible, site-specific solutions to address maintenance and improvement of stream channels, flooding impacts, and bank erosion issues.	Types of practices that are permitted.	Consult with SCCD on the types of projects that are permitted vs what landowners want to do.	Adverse impacts to agriculture due to flooding and streambank erosion continue and landowners report lack of management alternatives.	Coordinate with VSP staff, County officials, agency personnel, and ag stakeholders to facilitate communication and/or meetings to develop solutions.		
Protect private property rights	Voluntary approaches are used for environmental protection, rather than regulatory approaches.	Participation in stewardship practices and programs remains voluntary.	Ensure that VSP participation is still voluntary and that “no enforcement” resolution on page i of this plan is being followed.	Within the scope of VSP, incidents contrary to the provisions of the “no enforcement” resolution on page i reported to VSP staff or VSP Workgroup	Work with involved parties to ensure that voluntary intent of VSP is followed. If necessary, clarify existing or write additional resolution to ensure strictly voluntary approach.		

# 7 Implementation and Reporting

## 7.1 Implementation Roles

Implementation will occur following the approval of this plan and will involve outreach and technical assistance to agricultural operators and reporting on progress. Per RCW 36.70A.720 (d) & (f), Work Plans are required to “Ensure outreach and technical assistance is provided to agricultural operators in the watershed” and “designate the entity or entities that will provide technical assistance”. Technical assistance roles are summarized below.

**Table 7-1: Summary of Tasks and Technical Assistance Roles**

Task	Lead	Tech. Assistance as Needed	When
Conduct outreach to encourage participation in VSP Stewardship Checklist and voluntary practices	SCCD	WSU Extension Stevens County Land Services	Ongoing. Outreach Plan (Appendix B) assessed and updated each biennium
Distribute and record VSP Stewardship Checklists and provide assistance as needed.	SCCD/VSP Technical staff.	SCCD	Ongoing after plan approval
Evaluate participation in stewardship practices, conservation planning, and other conservation programs and benchmark progress.	SCCD/VSP Technical staff.	USDA – NRCS	2021, 2026
Review indicators to determine whether stewardship goals and strategies are translating to protection and enhancement of critical area functions and values has occurred at watershed scale.	VSP Workgroup/ Technical Staff	WDFW DNR Ecology	Ongoing after plan approval
Report to County and WSCC director on whether goals and benchmarks for protection and enhancement of critical areas were met	VSP Technical staff/ Workgroup	NA	2021, 2026
Adaptively manage if goals are not met	VSP Workgroup/ Technical Staff	SCCD, VSP Technical staff	September 2018, 2020, 2022, 2024 and 2026
Provide written report on the status of the Work Plan, including accomplishments, to the County and to WSCC	VSP Workgroup/ Technical Staff	NA	September 2018, 2020, 2022, 2024 and 2026
Communicate with state agencies regarding monitoring efforts to see if better cooperation is possible.	VSP Workgroup/ Technical Staff	NA	Annual

### 7.1.1 Technical Assistance

Technical assistance occurs in a variety of ways, including assisting with VSP Stewardship Checklists, providing advice on use of specific practices, and sharing educational information at forums, meetings, and other venues. County staff will prepare biennial outreach plans that incorporate public-sector activities to be implemented to achieve VSP outreach and technical assistance objectives, and also identify plans for working with the private sector to capture information about practices put in place through their efforts.

### 7.1.2 VSP Awareness Outreach

VSP awareness outreach efforts will be conducted with the goal of making as many watershed stakeholders as possible aware of the program and increasing face-to-face contact between stakeholders. This will include telephone, email, and postal outreach to existing watershed contacts and past cooperators as well as planned field days and workshops around the county. For further information, see Appendix B: Outreach Plan.

### 7.1.3 Stewardship Practice Outreach and Education

Maximizing landowner awareness of potential stewardship practices and the implementation process will be a key part of promoting voluntary stewardship practices. Field days, demonstrations, project tours, and informational media give landowners the opportunity to see how practices are applied on the ground. Stevens County Conservation District has conducted tours of successful stewardship projects on a regular basis in the past, and continuation of those events will be important to maximize awareness of stewardship practices.

### 7.1.4 Improving Partnerships

VSP is intended to “encourage and foster a spirit of cooperation and partnership among county, tribal, environmental, and agricultural interests to better assure the program success.”<sup>1</sup> Improving dialog between the key stakeholders and agencies surrounding agriculture and critical areas and working to find areas of common ground within their objectives will help facilitate the success of the VSP in Stevens County. The process of public outreach and monthly VSP Workgroup meetings has already contributed to this effort. A network of mentorship and on-farm learning opportunities will also be encouraged among program participants.



Stevens County Conservation District Project Tour, 2008



Northeast Washington Fair, 2016

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<sup>1</sup> RCW 36.70A.700 (2)(e)

## 7.2 Reporting

Per RCW 36.70A.720, the workgroup must:

- (1) (i) *provide a written report of the status of plans and accomplishments to the county and to the commission within sixty days after the end of each biennium;*
- (2) (b)(i) *Not later than five years after the receipt of funding for a participating watershed, the watershed group must report to the director and the county on whether it has met the work plan's protection and enhancement goals and benchmarks.*
- (2) (c) (i) *Not later than ten years after receipt of funding for a participating watershed, and every five years thereafter, the watershed group must report to the director and the county on whether it has met the protection and enhancement goals and benchmarks of the work plan.*

Based on the initial receipt of VSP funding in March 2016, the Stevens County VSP work group is required to complete the following reporting tasks:

- **2-year status reports:** conducting a program evaluation and providing a written report on the status of the Work Plan, including accomplishments, to the County and to the WSCC within 60 days (by the end of September) after the end of each biennium. Based on the March 2016 receipt of funding date, 2-year reports are due by end of September in 2018, 2020, 2022, 2024, and 2026.
- **5-year performance reports:** Developing and providing to the WSCC 5-year progress reports on Work Plan performance in meeting goals and benchmarks. Based on the March 2016 start date, 5-year progress reports would be due in early 2021 and 2026 and every five years thereafter.

**Table 7-2: Reporting Timelines**

Type	Schedule	Roles and Responsibilities
Program Evaluation (2-Year Status Reports)	Finalize Work Plan in 2017-18. (latest due date is October 25 <sup>th</sup> , 2018 per WSCC)	Workgroup with assistance from VSP Coordinator
	2018, 2020, 2022 et seq.	VSP Coordinator
(Report on Goals and Benchmarks) 5-Year Performance Reports	2021, 2026 et seq.	Workgroup oversees, VSP Coordinator prepares report
Adaptive Management or Additional Voluntary Actions	Ongoing after 2021	Workgroup oversees adaptive management recommendations sent to WSCC
Any Additional Reporting Requirements	Ongoing after Work Plan approval	Workgroup with assistance from VSP Coordinator

# Appendix A: Applicable Data and Plans

RCW 36.70A.720 (1) (a, h) states that the Workgroup must

*“review and incorporate applicable water quality, watershed management, farmland protection, and species recovery data and plans;” and “incorporate into the work plan any existing development regulations relied upon to achieve the goals and benchmarks for protection;”*

Existing programs, data, plans, and regulations from federal, state, and local sources were reviewed in the development of this plan. This chapter summarizes the relevant materials and how they apply to agriculture and the protection and enhancement goals of the VSP.

The following materials were reviewed and incorporated into the Work Plan:

<b>Data and Plans</b>	Water Quality Data
	Watershed Plans
	Species Recovery Data
	Farmland Protection Plans
	Shoreline Master Plan
<b>Regulations</b>	Federal
	State
	County
<b>Conservation Programs</b>	International
	Federal
	State
	Local

Table A-1: Applicable Data and Plans and Crosswalk to Work Plan

Statutory Requirement	Type	Specific Plans/ Data	Critical Area Relevance					Describe Work Plan Integration
			Wetlands	FWHCA	CARA	FFA	GHA	
Water quality Data and Plans	TMDL	Spokane River Total Dissolved Metals TMDL Spokane River Dissolved Oxygen TMDL Little Spokane River Fecal Coliform Bacteria, Temperature, and Turbidity TMDL Colville River Dissolved Oxygen TMDL (also addresses ammonia) Colville River Watershed Fecal Coliform Bacteria TMDL Detailed Implementation Plan Colville National Forest Temperature, Bacteria, pH, and Dissolved Oxygen TMDL	x	x				Used to identify protection issues relating to water quality. Water quality impairments identified in applicable TMDL’s, such as the Colville River Fecal Coliform Bacteria TMDL, were considered when evaluating <sup>1</sup> stewardship practices.
	Water Quality Data	Department of Ecology 303d list	x	x	x			Used to identify protection issues relating to water quality. Water quality impairments listed on the 303d list were considered when evaluating <sup>1</sup> stewardship practices.
Watershed management data and plans	Watershed Management Plans	Lower Spokane Watershed Plan Lower Spokane Watershed Detailed Implementation Plan WRIA 55/57 Watershed Plan Little Spokane Water Bank Feasibility Study WRIA 55/57 Detailed Implementation Plan WRIA 59 Colville River Watershed Plan WRIA 59 Colville River Watershed Detailed Implementation Plan Level 1 Technical Assessment WRIA 60 – Kettle River Watershed Pend Oreille Watershed Management Plan	x	x	x			Watershed plans were reviewed during the work plan development process. The VSP outreach process was designed to include stakeholders who were involved in past watershed planning efforts. The Colville River Watershed Plan sets prioritization of agricultural BMPs as one of its objectives. Riparian vegetation is emphasized in several watershed management plans and is incorporated into the VSP Work plan as a critical area monitoring indicator. The VSP goals and benchmarks for critical area protection were designed to avoid conflict with the goals of existing watershed plans.
Species recovery data and plans	WDFW PHS Data	WDFW PHS List WDFW PHS Map	x	x				Used to understand functions and values of Fish and Wildlife Habitat Conservation Areas, including potential intersections between threatened, endangered, and sensitive species and agricultural activities. PHS map was also used to calculate the amount of overlap between certain habitats and agricultural activities in each watershed, and is incorporated into wetlands monitoring as a reference tool <sup>2</sup> .
	WDFW Management Recommendations	Management Recommendations for Washington’s Priority Habitats and Species Management Recommendations for Washington’s PHS, Volume 1: Invertebrate Management Recommendations for Washington’s PHS, Volume 2: Riparian Management Recommendations for Washington’s PHS, Volume 3: Amphibians and Reptiles Managements Recommendations for Washington’s PHS, Volume IV: Birds	x	x				WDFW’s <i>Management Recommendations for Washington’s PHS – Riparian</i> describes riparian vegetation as an important factor for habitat and water quality. Riparian vegetation was prioritized during the selection of key stewardship practices for protection and enhancement of critical areas. Riparian vegetation was also designated as an effectiveness monitoring indicator.
	Other Wildlife Plans	Washington State Wildlife Action Plan	x	x		x		Not incorporated in the Work Plan since identified species and habitats were either non-existent in Stevens County or were addressed in other plans.
Additional Critical area protection data and plans	Stevens County Code	Stevens County Critical Area Ordinance Chapter 13.20: Protection Regulations	x	x	x	x	x	Used to identify and categorize critical area functions and values. Listed as an existing protection for critical areas with regard to non-agricultural land uses. NOT relied upon to achieve goals and benchmarks for critical area protection.
Farmland protection data and plans	Stevens County Code	Stevens County Comprehensive Plan Stevens County Ordinance No. 2012-02: Right to Farm, Ranch, and Practice Forestry Ordinance.						Agricultural viability monitoring includes verification that zoning and land use policies that protect agricultural viability continue to exist.

<sup>1</sup> Practices were evaluated and prioritized using the NRCS CPPE Tool and through Workgroup discussion

<sup>2</sup> See Table 6-2, M2.

## Federal, State, Local, and Tribal Regulations that Apply to Agriculture and Critical Areas

REGULATION	DESCRIPTION	Water Quantity	Water Quality	Habitat	Public Health & Safety
<b>FEDERAL REGULATIONS</b>					
<b>Clean Water Act (CWA)</b>					
Section 303: Water Quality Standards and Implementation Plan	Section 303(d) of the Clean Water Act established a process to identify and clean up polluted waters. Under the authority of Section 303 of the Clean Water Act, states establish water quality standards, identify impaired waters, and develop total maximum daily loads (TMDLs). TMDLs can be used to address water quality impairments through regulatory (for point source) or nonregulatory (for non-point source) mechanisms. In Stevens County, TMDLs have been established for the Colville River to address dissolved oxygen and fecal coliform.		X		
Section 402: National Pollutant Discharge Elimination System (NPDES)	NPDES Permits are required to authorize for point-source discharges of pollutants into a receiving body. Ecology is authorized by EPA to administer NPDES permits. NPDES permits are not required for most agricultural activities, as they are non-point sources of pollutants. Agricultural stormwater discharges and return flows from irrigated agriculture are specifically exempted from NPDES permit requirements. NPDES permits are required for finfish net pens, the use of aquatic pesticides, and discharge from concentrated animal feed operations (CAFOs). NPDES permits assure discharges comply with state water quality, sediment quality, and resource protection standards. A 2011 federal general NPDES permit restricts pesticide application near waterbodies; a draft 2016 general permit for pesticide applications is under review.		X		

REGULATION	DESCRIPTION	Water Quantity	Water Quality	Habitat	Public Health & Safety
Section 404: Discharge of Dredged and Fill Material	<p>Normal farming, silviculture, and ranching practices such as plowing, cultivating, minor drainage, and harvesting for the production of food, fiber, and forest products, or upland soil and water conservation practices are generally exempt from Section 404.</p> <p>Activities that convert a wetland that has not been used for farming or forestry into such uses are not considered part of an established operation, and are not exempt.</p> <p>Additionally, activities that result in a "reduction in reach/impairment of flow or circulation" of waters of the United States are not exempt. Where direct impacts occur to wetlands from these non-exempt activities, compensatory mitigation is required.</p>		X	X	
Rivers and Harbors Act Section 10	<p>Section 10 of the Rivers and Harbors Act requires that regulated activities conducted below the Ordinary High Water (OHW) elevation of navigable waters of the United States be permitted by the U.S. Army Corps of Engineers. Regulated activities include the placement/removal of structures, work involving dredging, disposal of dredged material, filling, excavation, or any other disturbance of soils/sediments or modification of a navigable waterway. All tidal waters are considered navigable waters.</p>				
Endangered Species Act (ESA) Section 9 and Section 7	<p>ESA prohibits the "take" of species listed as threatened or endangered. For projects involving federal funding, action, or approval, consultation with the National Marine Fisheries Service and/or US Fish and Wildlife Service is required for projects with the potential to affect listed species.</p>			X	

REGULATION	DESCRIPTION	Water Quantity	Water Quality	Habitat	Public Health & Safety
Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)	FIFRA regulates pesticide usage, storage, and disposal in accordance with label use restrictions and registration requirements to prevent unreasonable risks to human health and the environment. Under the authorization of this act, the EPA has banned the use of certain pesticides and limited the use of others.		X		X
US Department of Agriculture (USDA) Farm Bill (Swampbuster)	Per the 2014 Farm Bill, in order to maintain eligibility for US Department of Agriculture funding programs, participants must certify that they have not produced crops on converted wetlands after December 23, 1985, and did not convert a wetland after November 28, 1990, to make agricultural production possible. Additionally, producers must certify that they will not Plant or produce an agricultural commodity on highly erodible land without following an NRCS approved conservation plan or system.		X	X	
<b>SPOKANE TRIBE OF INDIANS</b>					
Spokane Tribe of Indians Surface Water Quality Standards			X		
<b>STATE OF WASHINGTON</b>					
<b>Agriculture and Marketing - RCW Title 15</b>					
Washington Pesticide Control Act (15.58.020 RCW)	Regulates the formulation, distribution, storage, transportation, and disposal of any pesticide and the dissemination of accurate scientific information as to the proper use, or nonuse, of any pesticide in the interest of maintaining a high level of public health and welfare both immediate and future.		X		X

REGULATION	DESCRIPTION	Water Quantity	Water Quality	Habitat	Public Health & Safety
Fertilizer Bulk Storage and Operational Area Containment Rules (16-201 WAC)	Regulates the primary and secondary containment of liquid bulk fertilizers; operational area containment of liquid bulk fertilizers; dry bulk fertilizer storage and handling; backflow prevention; fertilizer spills; maintenance, inspection and recordkeeping requirements; and spill response plan.		X		X
<b>Weeds, Rodents, and Pests- RCW Title 17</b>					
Noxious weeds- Control Boards (17.10 RCW)	Establishes state and regional noxious weed control board. Establishes owner's duty to eradicate all class A noxious weeds and to control and prevent the spread of all class B noxious weeds.			X	
Washington Pesticide Application Act (17.21 RCW)	Regulates the use and application of pesticides for protection of public health and welfare. Chemigation and fertigation are regulated under WAC 16-202.		X		X
<b>Fish and Wildlife- RCW Title 77</b>					
Wildlife Damage (77.36 RCW)	Allows landowners and their representatives to trap or kill wildlife that is threatening human safety or causing property damage on that property subject to specific standards. This provision is implemented under 232-36 WAC.			X	X

REGULATION	DESCRIPTION	Water Quantity	Water Quality	Habitat	Public Health & Safety
Hydraulic Code (77.55 RCW)	The Hydraulic Code gives the Washington Department of Fish and Wildlife (WDFW) the authority to review, condition, and approve or deny “any construction activity that will use, divert, obstruct, or change the bed or flow of any of the salt or fresh waters of the State.” These activities may include stream alteration, culvert installation or replacement, pier and bulkhead repair or construction, among others. In a permit called a Hydraulic Project Approval (HPA), WDFW can condition projects to avoid, minimize, restore, and compensate for adverse impacts			X	
<b>Flood Control- RCW Title 86</b>					
Floodplain Management (86.16 RCW)	Statewide floodplain management regulation shall be exercised through: (1) Local governments' administration of the national flood insurance program (NFIP), (2) the establishment of minimum state requirements for floodplain management that equal the minimum federal requirements for the NFIP, and (3) the issuance of regulatory orders.				X
<b>Title 87 Irrigation</b>					
Irrigation Districts (87.03)	Establishes irrigation and improvement districts.	X			
<b>Title 89 Reclamation, Soil Conservation, and Land Settlement</b>					
Conservation Districts (RCW 89.08)	Establishes conservation districts.			X	
Office of Farmland Preservation (RCW Title 89.10)	Establishes the office of Farmland Preservation.				

REGULATION	DESCRIPTION	Water Quantity	Water Quality	Habitat	Public Health & Safety
<b>Water Rights – Environment- RCW Title 90</b>					
Water Code (90.03 RCW)	Establishes water rights appropriation standards and procedures. Water use is subject to the "first in time, first in right" clause	X			
Regulation of Public Groundwaters (90.44 RCW)	The groundwater permit exemption allows the users of small quantities of groundwater to construct wells and develop their water supplies without first obtaining a water right permit from Ecology. Agricultural exceptions to the permit requirement for withdrawals of groundwater apply to: <ul style="list-style-type: none"> <li>• Providing water for livestock (no gallon per day limit).</li> <li>• Providing water for industrial purposes, including irrigation (limited to 5,000 gallons per day but no acre limit).</li> </ul>	X			
Water Pollution Control Act (90.48 RCW)	Establishes state water quality program under Ecology. Under the Act, water quality standards are established for surface water (WAC 173-201A) and groundwater (WAC 173-200A). Also includes section 401 water quality certification on CWA section 404 permits.		X		
Dairy Nutrient Management (90.64 RCW)	Requires all dairy producers, regardless of size to prepare and implement a dairy nutrient management plan, register with WSDA, and participate in a program of regular inspections and compliance. The Department of Ecology is responsible for developing and maintaining a standard protocol for water quality monitoring of the waters of the state within the vicinity of dairies and CAFOs.		X		

Shoreline Management Act (SMA) (RCW 90.58 and WAC 173-18 through 173-27)	The SMA requires cities and counties to prepare Shoreline Master Programs (SMPs). See discussion of VSP and SMP.		X	X	
<b>REGULATION</b>	<b>DESCRIPTION</b>	<b>Water Quantity</b>	<b>Water Quality</b>	<b>Habitat</b>	<b>Public Health &amp; Safety</b>
<b>STEVENS COUNTY REGULATIONS</b>					
Critical Areas Ordinance (CAO) of Stevens County (Title 13)	The purpose of the Stevens County Critical Areas Ordinance is to comply with RCW 36.70A, the Growth Management Act. To the extent required by the Growth Management Act, the CAO is intended to protect the public health, safety, and general welfare by providing reasonable and effective regulations to 1) conserve, protect, and maintain the functions and values of regulated critical areas, 2) to prevent harm to the public health, safety, and general welfare from potential hazards associated with certain critical areas and 3) to support the overall goal of Washington State to assure the protection of wetlands.	X	X	X	X
Stevens County Comprehensive Plan	Section 4.2: Natural Resource Policies designates some lands as “commercially significant agricultural and forest lands to ensure that the county maintains a critical mass of such lands for present and future use.”				
Ordinance No. 2012-02: Right to Farm, Ranch, and Practice Forestry	This ordinance ensures that customary uses of land for agriculture will not be prohibited, restricted, or considered a nuisance as long as they: - are conducted in a manner consistent with current good management practices; - are not in violation of local, State, or Federal regulations; and - do not have substantial negative effects on public health and safety.				

## WATER QUALITY DATA & PLANS

Plans and data pertaining to water quality in each of the seven WRIA's in Stevens County Watersheds was reviewed in the development of this Plan.

**Table A-2: Water Quality Information by Watershed**

WRIA	303d Water Quality Concerns	TMDL Info
54 Lower Spokane	Bacteria pH Dissolved Oxygen PCB Total Dissolved Gas	<a href="#">Spokane River Total Dissolved Metals TMDL</a>  <a href="#">Spokane River Dissolved Oxygen TMDL</a>
55/57 Little Spokane/Middle Spokane	Bacteria pH Dissolved Oxygen PCB	<a href="#">Spokane River Dissolved Oxygen TMDL</a> <a href="#">PCB water quality improvement project</a> <a href="#">Little Spokane River Watershed Fecal Coliform Bacteria, Temperature, and Turbidity TMDL</a>
58 Middle Lake Roosevelt	Bacteria Mercury Temperature pH	<a href="#">Colville National Forest Temperature, Bacteria, pH and Dissolved Oxygen TMDL</a>
59 Colville	Invasive Exotic Species Dieldrin PCB Bacteria Temperature Dissolved Oxygen Ammonia-N Turbidity	<a href="#">Colville River Dissolved Oxygen Total Maximum Daily Load (also addresses ammonia)</a>  <a href="#">Colville River Watershed Fecal Coliform Bacteria TMDL Detailed Implementation Plan</a>
60 Kettle River	Bacteria Temperature pH	<a href="#">Colville National Forest Temperature, Bacteria, pH and Dissolved Oxygen TMDL (Water Cleanup Plan)</a>
61 Upper Lake Roosevelt	Bacteria Temperature pH Dissolved Oxygen Dioxin Mercury 4,4'-DDT 4,4'-DDD Alpha-BHC PCB Total Dissolved Gas	<a href="#">Colville National Forest Temperature, Bacteria, pH and Dissolved Oxygen TMDL (Water Cleanup Plan)</a> A TMDL has also been done for total dissolved gas (TDG) in the Columbia River. TDG is excessive gas trapped in the water that causes harm to fish.
62 Pend Oreille	Bacteria Dissolved Oxygen PCBs Temperature Total Dissolved Gas	Total Maximum Daily Loads (TMDLs) began in early 2005 to address problems with temperature and total dissolved gas (TDG) on portions of the Pend Oreille River system. <a href="#">Pend Oreille River Total Dissolved Gas TMDL</a>

## WATERSHED MANAGEMENT PLANS

### WRIA 54 - Lower Spokane Watershed

#### *Lower Spokane Watershed Plan*

Provides a comprehensive review of water resources in the watershed and outlines strategies for future management. These strategies take the form of recommendations, obligations and position statements for the WRIA 54 Planning Unit, a working group of state and local governments, and organizational and private representatives.

[http://www.spokanewatersheds.org/files/documents/WRIA54Plan\\_Aug2009\\_wfigures.pdf](http://www.spokanewatersheds.org/files/documents/WRIA54Plan_Aug2009_wfigures.pdf)

#### *Lower Spokane Watershed Detailed Implementation Plan*

Provides a framework for implementing strategies presented in the 2009 WRIA 54 Watershed Plan and evaluating their effectiveness.

[http://www.spokanewatersheds.org/files/documents/WRIA54-ImplementationPlan\\_Final12-20-10.pdf](http://www.spokanewatersheds.org/files/documents/WRIA54-ImplementationPlan_Final12-20-10.pdf)

### WRIA 55– Little Spokane

#### *WRIA 55/57 Watershed Plan*

The WRIA 55/57 Watershed Plan was adopted on January 31, 2006 by Spokane County, Stevens County, and Pend Oreille County. The objectives of the planning effort were to address water resource issues, provide local management of water resources, and coordinate and consolidate water management practices. The watershed plan includes recommended actions to achieve water management goals established in the plan.

<http://www.spokanewatersheds.org/files/documents/WRIA-55-57-Watershed-Management-Plan-Final-1-31-06.pdf>

#### *Little Spokane Water Bank Feasibility Study*

Spokane County, in conjunction with Stevens and Pend Oreille Counties, is evaluating the use of a water bank to address existing and potential regulatory constraints on existing and new water use, in Water Resource Inventory Area (WRIA) 55, the Little Spokane Watershed. A water bank is an institutional mechanism that facilitates transfer of senior water rights between buyers and sellers. While individual parties can currently buy and sell water rights without a water bank, a water bank can reduce transaction costs and allow the distribution of one large water right to multiple small uses. <http://www.spokanewatersheds.org/wria-55-57-current-projects>

#### *WRIA 55/57 Detailed Implementation Plan*

Provides a framework for implementing strategies presented in the 2006 WRIA 55/57 Watershed Plan and evaluating their effectiveness. Developing the WRIA 55/57 Watershed Plan was Phase 3 of the planning process outlined in Washington's 1998 Watershed Planning Act.

<http://www.spokanewatersheds.org/wria-55-57-implementation-plan>

### WRIA 58 – Middle Lake Roosevelt

Not currently working under the Watershed Planning Act.

## WRIA 59 - Colville River Watershed

### *WRIA 59 Colville River Watershed Plan*

Outlines goals and objectives for water quantity, water quality, and habitat in the Colville River Basin. These goals and objectives were reviewed during the development of the Stevens County VSP Work Plan.

[http://www.co.stevens.wa.us/Wria59/pdfs/Watershed\\_Plan/WRIA59%20Plan%20Ver2.0.pdf](http://www.co.stevens.wa.us/Wria59/pdfs/Watershed_Plan/WRIA59%20Plan%20Ver2.0.pdf)

### *WRIA 59 Colville River Watershed Detailed Implementation Plan*

Guides implementation of the WRIA 59 Colville River Watershed Plan and fulfills the requirements of the Watershed Planning Act.

<http://www.co.stevens.wa.us/Wria59/pdfs/Detailed%20Implemt/FINAL%20WRIA%2059%20DIP%20032206.pdf>

### *Chapter 173-559 WAC: Water Resources Program for the Colville River Basin*

Sets forth the policies for managing the basin's water resources, including establishment of base flows and restrictions on further consumptive appropriation of water.

<http://www.co.stevens.wa.us/Wria59/InstreamFlow/2014/October/WAC-173-559-CHAPTER.pdf>

## WRIA 60 – Kettle River Watershed

### *Level 1 Technical Assessment WRIA 60 – Kettle River Watershed*

A Level 1 technical assessment of the Kettle River Watershed was completed in 2004. Also in 2004, the Kettle watershed planning group voted to discontinue their planning work at the end of Phase 2, and not move forward into Phase 3 watershed plan development.

<https://fortress.wa.gov/ecy/publications/documents/0406012.pdf>

## WRIA 61 - Upper Lake Roosevelt Watershed

Watershed planning has not yet been conducted in WRIA 61. Total Maximum Daily Loads (TMDLs) have been completed for creeks and rivers within the Colville National Forest.

<https://fortress.wa.gov/ecy/publications/publications/0811025.pdf>

## WRIA 62 – Pend Oreille Watershed

### *Pend Oreille Watershed Management Plan*

Pend Oreille County Board of Commissioners adopted the Pend Oreille Watershed Management Plan in June 2005 and began their first year of Phase 4 Implementation in September 2005. The planning group completed their detailed implementation plan in October 2006. They are developing education and outreach projects to engage the public in restoration and instream flow activities.

<http://www.ecy.wa.gov/programs/eap/wrias/planning/docs/WRIA62FinalPlan032305.pdf>

## FARMLAND PRESERVATION DATA

### *Right to Farm, Ranch and Practice Forestry Ordinance*

Stevens County has a “Right to Farm, Ranch, and Practice Forestry Ordinance” designed to protect and encourage agricultural practices within the county.<sup>1</sup> This ordinance ensures that customary uses of land for agriculture will not be prohibited, restricted, or considered a nuisance as long as they:

- are conducted in a manner consistent with current good management practices;
- are not in violation of local, State, or Federal regulations; and
- do not have substantial negative effects on public health and safety.

The *Right to Farm, Ranch, and Practice Forestry Ordinance* is effective in promoting agricultural land and agricultural producers in conjunction. It ensures that a maximum amount of land available is legally available for agriculture, and supports and encourages the ability of people to conduct agricultural activities on that land continuously.

### *Land-use Zoning Policies*

Additional planning documents address the challenge of protecting agricultural land through strategic land-use planning efforts and zoning designations. The Stevens County Comprehensive Plan designates some lands as “commercially significant agricultural and forest lands to ensure that the county maintains a critical mass of such lands for present and future use.”<sup>2</sup> The County considers the following criteria when determining which lands to designate as agricultural and forest resource lands:

- A. NRCS Soils classification;
- B. the presence of nearby urban growth areas, LAMIRDS, or small communities that might impinge on or detract from the viability of long-term agricultural use;
- C. Location of the flood plain;
- D. Current parcel sizes, ownership and use, to the degree known;
- E. Taxation as agricultural land or enrollment in an agricultural conservation program; and
- F. The overall size and shape of the potential area to be designated and the adjacent or surrounding geography or terrain.

Lands designated as agriculture and forest resource lands in the Comprehensive Plan are zoned as **Agriculture** and **Forest** lands in the County’s development regulations<sup>3</sup>, with the objective of conserving and maintaining these lands for future use. Additionally, the County lists **Rural Agriculture** zones among its *Rural Zones*. Rural Agriculture zones identify lands that do not meet the criteria for the Agriculture zone but which are used for farming and ranching. Stevens County has Zoning Maps which identify designated Agriculture and Forest resource lands, along with other rural areas designated as Rural Agriculture.

**Table A2: Designated Rural Agriculture and Resource Lands**

Land Designation	Total Acres
Agriculture Resource	40,183
Forest Resource	671,800
Rural Agriculture	37,956
TOTAL	750,295

<sup>1</sup> Stevens County Ordinance No. 2012-02

<sup>2</sup> Stevens County Comprehensive Plan, Section 4.2: *Natural Resources Policies*

<sup>3</sup> Stevens County Development Regulations – Title 3, Chapter 3.02: *Purpose and Establishment of Zones*

## SPECIES RECOVERY DATA

The WDFW Priority Habitats and Species (PHS) List and the PHS distribution map were reviewed in the development of this plan. Management documents found on the WDFW PHS site were also reviewed.

### WDFW PHS List

#### \*\* Important Note \*\*

These are the species and habitats identified for Stevens County. This list of species and habitats was developed using the distribution maps found in the Priority Habitat and Species (PHS) List (see <http://wdfw.wa.gov/conservation/phs/>). Species distribution maps depict counties where each priority species is known to occur as well as other counties where habitat primarily associated with the species exists. Two assumptions were made when developing distribution maps for each species:

- 1) There is a high likelihood a species is present in a county, even if it has not been directly observed, if the habitat with which it is primarily associated exists.
- 2) Over time, species can naturally change their distribution and move to new counties where usable habitat exists.

Distribution maps in the PHS List were developed using the best information available. As new information becomes available, known distribution for some species may expand or contract. WDFW will periodically review and update the distribution maps in PHS list.

	Species/ Habitats	State Status	Federal Status
Habitats	Aspen Stands		
	Biodiversity Areas & Corridors		
	Inland Dunes		
	Old-Growth/Mature Forest		
	Riparian		
	Freshwater Wetlands & Fresh		
	Instream		
	Caves		
	Cliffs		
	Snags and Logs		
	Talus		
Fishes	White Sturgeon		
	Lake Chub	Candidate	
	Umatilla Dace	Candidate	
	Bull Trout/ Dolly Varden	Candidate *	Threatened *
	Kokanee		
	Rainbow Trout/ Steelhead/ Inland Redband Trout	Candidate **	Threatened **
	Westslope Cutthroat		
Amphibians	Columbia Spotted Frog	Candidate	
	Western Toad	Candidate	Species of Concern
Birds	Common Loon	Sensitive	
	Western grebe	Candidate	

	E WA breeding concentrations of: Grebes, Cormorants		
	E WA breeding: Terns		
	Great Blue Heron		
	Cavity-nesting ducks: Wood Duck, Barrow's Goldeneye, Common Goldeneye, Bufflehead, Hooded Merganser		
	Waterfowl Concentrations		
	Bald Eagle	Sensitive	Species of Concern
	Golden Eagle	Candidate	
	Northern Goshawk	Candidate	Species of Concern
	Peregrine Falcon	Sensitive	Species of Concern
	Dusky Grouse		
	E WA breeding occurrences of:		
	Yellow-billed Cuckoo	Candidate	Candidate
	Flammulated Owl	Candidate	
	Vaux's Swift	Candidate	
	Black-backed Woodpecker	Candidate	
	Lewis' Woodpecker	Candidate	
	Pileated Woodpecker	Candidate	
	White-headed Woodpecker	Candidate	
Mammals	Roosting Concentrations of: Big-		
	Townsend's Big-eared Bat	Candidate	Species of Concern
	Fisher	Endangered	Candidate
	Gray Wolf	Endangered	
	Grizzly Bear	Endangered	Threatened
	Lynx	Threatened	Threatened
	Marten		
	Wolverine	Candidate	Candidate
	Moose		
	Mountain Goat		
	Northwest White-tailed Deer		
	Elk		
	Rocky Mountain Mule Deer		
Invertebrates	California Floater	Candidate	Species of Concern
	Silver-bordered Fritillary	Candidate	

*Management Recommendations for Washington's Priority Habitats and Species (1991)*

This document contains recommendations for management of PHS species at the time it was written. <http://wdfw.wa.gov/publications/00032/wdfw00032.pdf>

*Management Recommendations for Washington's Priority Species, Volume I: Invertebrate (1995)*

Management Recommendations for Washington's Priority Species, Volume I: Invertebrates is the first in a series of volumes containing species management recommendations, and includes most terrestrial and freshwater invertebrates on the Priority Habitats and Species (PHS)

List. <http://wdfw.wa.gov/publications/00024/>

*Management Recommendations for Washington's Priority Habitats: Riparian (1997)*

Recommendations on major land use activities commonly conducted within or adjacent to riparian areas are provided, including those relative to agriculture, chemical treatments, grazing, watershed management, roads, stream crossings and utilities, recreational use, forest practices, urbanization, comprehensive planning, restoration, and enhancement.

<http://wdfw.wa.gov/publications/00029/>

*Management Recommendations for Washington's Priority Species Volume III: Amphibians & Reptiles (1997)*

Management Recommendations for Washington's Priority Species, Volume III: Amphibians and Reptiles is the second in a series of volumes containing species management recommendations, and includes most amphibians and reptiles on the Priority Habitats and Species (PHS) List.

<http://wdfw.wa.gov/publications/00025/>

*Management Recommendations for Washington's Priority Species Volume IV: Birds (2012)*

Management Recommendations for Washington's Priority Species, Volume IV: Birds is the third published volume in a series containing species management recommendations, and includes most birds on the Priority Habitats and Species (PHS) List. Each species account within this volume provides information on the bird's geographic distribution and the rationale for its inclusion on the PHS List. <http://wdfw.wa.gov/publications/00026/>

*Management Recommendations for Washington's PHS, Volume V: Mammals (in progress)*

This document contains management recommendations for mammals that are designated as priority species. The document is being edited, but currently contains sections on Columbian White-Tailed Deer, Merriam's Shrew, Pallid Bat, Western Gray Squirrel, and Townsend's Big-Eared Bat.

<http://wdfw.wa.gov/publications/00027/>

## Existing Conservation Programs

There are a variety of environmental certification and voluntary incentive programs for agricultural producers provided by international, federal, state, and local entities. The VSP is intended to be compatible with existing conservation programs to achieve protection and enhancement of critical areas. This section provides a summary of federal, state, and local voluntary incentive programs that are available to agricultural producers. Table A-1 summarizes federal programs, and Table A-2 summarizes state and local programs.

The following non-governmental organizations provide voluntary environmental certifications and incentives for agricultural practices:

- **GLOBAL G.A.P. Certification:** Global G.A.P. is an international non-profit organization that provides a voluntary certification for good agricultural practices. See WSU Extension for further info.
- **Safe Quality Food Institute (SQFI):** The SQF Institute offers certifications for agricultural BMPs.
- **Farmed Smart:** The Pacific Northwest Direct Seed Association oversees the Farmed Smart Program to certify producers who use sustainable practices. The program defines conservation standards and provides educational tools to producers regarding the benefits of direct seeding.

**Table A-1: Federal Conservation Programs<sup>1</sup>**

Lead	Description	Program	Details
USDA Natural Resources Conservation Service (NRCS)	NRCS provides technical and financial assistance to help agricultural producers make and maintain conservation improvements on their land NRCS also offers conservation easement programs and partnerships to leverage existing conservation efforts on farm lands.	Environmental Quality Incentives Program (EQIP)	Voluntary program providing financial and technical assistance for agricultural producers to plan and implement conservation practices improving soil, water, plant, animal, air, and related natural resources.
		Conservation Stewardship Program (CSP)	Voluntary program providing technical assistance for agricultural and forest landowners to develop plans for conservation, management, and enhancement activities.
		Agricultural Conservation Easement Program (ACEP)	Provides conservation partners with financial and technical Assistance through agricultural land easements to restore, protect, and enhance wetlands.
		Agricultural Water Enhancement Program (AWEP).	Voluntary program providing financial and technical assistance to agricultural producers for implementing agricultural water-enhancement activities.
		Wildlife Habitat Enhancement Program (WHIP)	Voluntary program for wildlife habitat conservation and enhancement on agricultural land, nonindustrial private forest land, and Native American land.
USDA Farm Service Agency (FSA)	FSA oversees several voluntary, conservation-related programs that work to address agriculture related conservation issues.	Conservation Reserve Program (CRP)	Voluntary reserve program to conserve environmentally sensitive land through agricultural practices and plant species to provide wildlife habitat and improve environmental health.
		Conservation Reserve Enhancement Program	Voluntary enhancement program similar to CRP that targets high-priority conservation issues.

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<sup>1</sup> Adapted from Grant County VSP Work Plan

**Table A-2: State and Local Conservation Programs**

Lead	Description	Program	Details
Washington State Conservation Commission (WSCC)	WSCC works with local conservation districts to provide voluntary, incentive-based programs for implementation of conservation practices. WSCC supports the CDs through financial and technical assistance, administrative and operational oversight, program coordination, and promotion of district's activities and services.	Coordinated Resource Management (CRM) Program	Voluntary and locally led program for landowners seeking to resolve land-use and natural resource issues through local coalitions and consensus building.
		Irrigation Efficiencies Grant Program	Provides financial incentives to landowners willing to install irrigation systems that save water.
		Natural Resource Investments (non-shellfish) Grants	Cost-share grant program for landowners to complete natural resource enhancement projects necessary to improve water quality in non-shellfish-growing areas.
		Office of Farmland Preservation	The OFP identifies and addresses farmland loss through agriculture conservation easement programs, providing technical assistance, developing farm transition programs, and providing data and analysis on trends.
		Wildlife Habitat Enhancement Program (WHIP)	Voluntary program for wildlife habitat conservation and enhancement on agricultural land, nonindustrial private forest land, and Native American land.
Washington State Department of Fish and Wildlife (WDFW)	WDFW provides financial assistance for habitat projects that restore and/or preserve fish and wildlife habitat through funding opportunities.	Aquatic Lands Enhancement Account	Grant program for qualifying landowners who undertake projects that benefit Washington's fish and wildlife resources.
Washington State Recreation and Conservation Office	The Washington State Recreation and Conservation Office provides funding to protect fish and wildlife habitat and farmland.	Farmland Preservation Grants	Grant program that provides funding to cities, counties, and others to buy development rights on farmlands to ensure the lands remain available for farming in the future.
Washington State Department of Ecology	Ecology provides funding for water quality improvement and protection projects.	Water Quality Financial Assistance Program	Grant and loan program for high-priority projects to protect and improve the health of Washington State waters.

# Appendix B: Outreach Plan

## Outreach for Work Plan Development (2016 – 2017)

STAGE:	ACTION ITEM:	LEAD:	WHEN:	OUTCOME:
Workgroup Formation and Plan Development	➤ Initial notification letter to watershed stakeholders.	BOCC	March 7 <sup>th</sup> , 2016	Letters and emails sent to contact lists from past watershed planning processes.
	➤ Kickoff meeting press announcements.	VSP Coord.	March 15 <sup>th</sup> , 2016	Announcements printed in Statesman Examiner, Chewelah Independent, and Silverado Press.
	➤ Outreach to ag organizations <ul style="list-style-type: none"> <li>Stevens County Cattlemen</li> <li>Stevens County Farm Bureau</li> <li>Colville Farmer's Market</li> <li>NE WA Farm Forestry Association</li> <li>Washington Sheep Producers</li> <li>Washington State Grange</li> <li>Citizens Alliance for Property Rights.</li> <li>Washington State Hay Growers Association</li> </ul>	VSP Coord.	March 1-28 <sup>th</sup> , 2016	Representatives from each ag organization were informed about VSP process and invited to kickoff meeting.
	➤ Outreach to Colville and Spokane Tribes.	VSP Coord.	March 1st–28 <sup>th</sup> 2016	No interest in participation was indicated. Outreach efforts were continued following the kickoff meeting.
	➤ Outreach to environmental stakeholders. <ul style="list-style-type: none"> <li>Citizens for a Clean Columbia</li> <li>Spokane Trout Unlimited</li> <li>Lands Council</li> </ul>	VSP Coord.	March 1st–28 <sup>th</sup> 2016	Workgroup participation from members of Citizens for Clean Columbia and Lands Council.
	➤ Radio Interview	VSP Coord.	June 15 <sup>th</sup> , 2016	15-minute Interview on KCHW 102.7 morning show with Scott and Jean.
	➤ VSP Website	VSP Coord.	ongoing	
	➤ Develop and distribute outreach materials <ul style="list-style-type: none"> <li>One Page VSP Fact-sheet</li> <li>Spring VSP Newsletter</li> <li>Fair Display</li> <li>Tri-fold poster</li> <li>VSP section in SCCD Newsletter</li> </ul>	VSP Coord / SCCD Staff	April 1, 2016 – August 31 <sup>st</sup> , 2017.	All listed materials were developed and distributed. VSP tri-fold display was used at events such as the Stevens County Home and Garden Show.

### Implementation Outreach Goals: 2018 -2020 Biennium

Type of Outreach	Item	Number Completed (fill in at end of biennium)	Goal	Outreach Lead
<b>Tours</b>	VSP participant-led tours		Four or more tours	SCCD/ VSP Technical Staff
	CD-led annual tours			
	Legislative and partner agencies outreach tours			
	Private sector industry tours			
<b>Meetings</b>	CD monthly board meetings (public meetings)		VSP covered on the agenda at 10 or more meetings.	SCCD/ VSP Technical Staff
	CD annual meetings			
	Meetings of relevant organizations (ex. Hay Growers, CCC)			
	Annual Northeast Washington CD meetings			
	Local government			
	Private sector industry-led meetings			
<b>Media</b>	CD and private websites, newsletters		Ten or more total	SCCD/ VSP Technical Staff
	Stevens County website			
	WSCC news and announcement webpage			
	News articles and ads with local newspapers			
	Tri-fold brochure			
	Web page updates by local farmers			
	Films/ materials at film festival			
	KCVL Radio			
	Sign at baseball diamonds			

# Appendix C: Agricultural Industry Data

## ECONOMIC IMPACTS OF AGRICULTURE

**Summary:** Agriculture is the second largest commercial industry in Stevens County in terms of economic output, behind the timber and forest products industry. Agriculture is the top creator of full-time-equivalent jobs, and the second largest commercial generator of earned income.

*Data Source: Minnesota IMPLAN Group 2014. The following report summarizes the impact of the agricultural sectors in the county in terms of output, employment, and total value added.*

### Total Output (Sales)

Industry	Direct Output	Output Multiplier	Total Output
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	19,522,816	1.451	28,321,602
Animal production, except cattle and poultry and eggs	13,168,919	1.121	14,767,738
All other crop farming	11,841,657	1.143	13,534,608
Greenhouse, nursery, and floriculture production	9,176,390	1.140	10,463,674
Grain farming	2,566,692	1.445	3,710,018
Dairy cattle and milk production	2,333,390	1.222	2,850,476
Fruit farming	1,774,283	1.136	2,016,348
Vegetable and melon farming	330,027	1.121	369,837
Oilseed farming	226,687	1.191	269,892
Poultry and egg production	162,469	1.123	182,507
Tree nut farming	57,335	1.117	64,035
	<b>61,160,665</b>	<b>TOTAL OUTPUT:</b>	<b>\$76,486,697</b>

### Employment

Industry	Direct Jobs Maintained	Total Jobs
All other crop farming	532.73	550.60
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	309.38	440.50
Greenhouse, nursery, and floriculture production	42.03	53.60
Fruit farming	23.59	26.20
Grain farming	17.53	37.60
Animal production, except cattle and poultry and eggs	120.40	135.50
Dairy cattle and milk production	5.82	12.50
Vegetable and melon farming	1.71	2.10
Oilseed farming	0.77	1.40
Tree nut farming	0.58	0.60
Poultry and egg production	0.18	0.30
	<b>TOTAL JOBS MAINTAINED:</b>	<b>1,261</b>

### Total Value Added\*

Industry	Total Value Added	Value Added Multiplier	Total Impact
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	10,138,597.96	1.45	14,659,600
Animal production, except cattle and poultry and eggs	12,510,473.18	1.07	13,353,566
All other crop farming	10,680,735.13	1.08	11,567,939
Greenhouse, nursery, and floriculture production	8,719,602.00	1.08	9,399,453
Fruit farming	1,685,569.25	1.08	1,814,152
Dairy cattle and milk production	1,554,809.05	1.16	1,809,938
Grain farming	485,200.69	2.20	1,067,571
Vegetable and melon farming	313,525.27	1.07	334,537
Oilseed farming	170,752.98	1.13	192,907
Poultry and egg production	95,170.61	1.08	102,896
Tree nut farming	55,897.70	1.06	59,459
<b>TOTAL (\$):</b>			<b>\$54,362,019</b>

\* Total Value Added = Sum of Employee Compensation, Proprietor Income, Other Property-Type Income, and Taxes on Production and Imports. IMPLAN's Total Value Added Multipliers were used for the type SAM Multipliers.

#### Notes:

Two additional sectors - 'Animal, except poultry, slaughtering' and 'Meat processed from carcasses' - are connected to Agriculture, and would likely not exist without local ag production in the county. An estimated 84% of the cattle used in these two industries is locally sourced. The slaughtering and meat processing industries contribute an estimated 8 additional jobs and over \$4 million in annual sales. (Minnesota IMPLAN Group, 2016).

IMPLAN Type SAM Multipliers were used to estimate the total impacts on output, employment, and income. These multipliers represent the ratio of Total Impacts to Direct Impacts. The Type SAM Multiplier represents the direct, indirect, and induced effect that a given change in final demand will have.

# USDA Ag Census Data

Data Source: USDA Census of Agriculture, 1982-2012

	1982	1987	1992	1997	2002	2007	2012
<b>Farms and Farmland Acreage</b>							
Number of Farms	1,191	1,073	1,054	989	1,269	1,258	1,148
Land in Farms (acres)	578,060	525,783	546,303	525,121	528,402	531,082	527,123
Average Size of Farm	485	490	518	531	416	422	459
Total Cropland Acreage	138,972	131,700	124,452	123,434	116,370	88,344	88,785
Harvested Cropland Acreage	68,000	68,275	66,918	66,790	72,272	55,263	57,638
Pastureland	386,489	348,662	380,274	374,686	354,222	389,282	245,926
Woodland- Pastured	259,895	232,681	287,497	281,332	218,030	236,092	73,352
Woodland- Not Pastured	59,674	50,518	50,804	50,522	60,220	47,058	195,310
Average Age of Principal Farmer	50.60	51.80	54	55	54	59	60
<b>Livestock vs. Crop Sales (\$1000)</b>							
Crop Sales	5,840	4,857	7,110	9,018	11,552	11,676	17,401
Livestock, Poultry, and their products Sales	17,214	14,606	16,292	13,797	16,693	12,854	18,895
Total Sales	23,054	19,462	23,402	22,815	28,245	24,530	36,346
% Total Sales- Crops	0.25	0.25	0.30	0.40	0.41	0.48	0.48
% Total Sales- Livestock, poultry, and their products	0.75	0.75	0.70	0.60	0.59	0.52	0.52
<b>Crop Acreage</b>							
Acres of Wheat - Spring & Winter	15,152	10,346	13,276	9,530	7,331	5,121	9,348
Acres of Barley	14,739	7,045	9,210	7,462	5,256	3,176	5,400
Acres of Hay/ Haylage, Grass silage, greenchop	46,689	47,816	42,315	48,023	55,918	45,077	41,522
Hay/ Haylage, Grass silage, greenchop (tons, dry)	94,382	83,289	73,571	102,378	111,886	79,708	85,953
<b>Cattle</b>							
Cattle and Calves Inventory	44,961	36,525	35,604	33,962	30,009	23,012	19,291
Cattle Farms	874	671	474	601	569	542	473
Beef Cows	15,891	13,738	13,752	15,853	13,234	12,433	10,521
Dairy Cows	4,918	3,959	2,994	1,606	2,161	842	545

### Production Expenses

Total Farm Production Expenses (\$1000):	18,162	18,271	20,033	20,085	26,467	26,993	33,240
Total Farm Production Expenses in 2012 dollars( based on US Gov CPI) (\$1000):	43,211	38,120	32,783	28,731	33,778	29,889	33,240
Average Production Expense Per Acre:	74.75	72.50	60.01	54.71	63.92	56.28	63.06

### Value of Sales (\$1000's)

Cattle and Calves	11,774
Other Crops and Hay	8,861
Grains, oilseeds, dry beans, dry peas	4,931
Nursery, greenhouse, floriculture, sod	1,846
Milk from Cows	1,639
Horses, ponies, mules, burros, and donkeys	675
Other	517
Sheep, goats, wool, mohair, and milk	464
Poultry and Eggs	51
<b>Total:</b>	<b>30,758</b>

### Farm Size: Number of Farms

1-49 acres	508
50-99 acres	204
100-499 acres	309
500-999 acres	74
1000-2000 acres	33
2000 or more acres	20

## Appendix D: Watershed Baselines

Existing available data was used to calculate baseline estimates of the intersection between agriculture and critical areas in each watershed in Stevens County. These figures are intended to demonstrate a general understanding of the location and extent of critical areas and agricultural activities in each watershed. They do not serve as indicators of the success or failure of the Stevens County VSP Work Plan. The intersection were calculated using ArcMap 10.3.1 and Microsoft Excel. The following data was used:

<b>Agricultural Activities</b>	WSDA Crop Layer 2011
<b>Watersheds</b>	Water Resource Inventory Areas, Washington Department of Ecology (2016).
<b>County Boundary</b>	Washington Department of Transportation (2017)
<b>Streams</b>	Washington DNR Hydro Layer (2011)
<b>Wetlands</b>	National Wetlands Inventory Map obtained from Department of Ecology Website (2016)
<b>Fish and Wildlife Habitat Conservation Areas (terrestrial)</b>	WDFW Priority Habitats and Species (PHS) regions, obtained from WDFW (2016).
<b>Fish and Wildlife Habitat Conservation Areas (fish)</b>	WDFW Priority Habitats and Species (PHS) Fish habitat, obtained from WDFW (2016).
<b>Floodplains</b>	FEMA Flood Insurance Maps (2004). FEMA Special Flood Hazard Areas (2016).
<b>CARA</b>	Stevens County Information Services 'CARA Boundary' layer (obtained 2016).
<b>Geologically Hazardous Areas</b>	NRCS SSURGO Database (1999) –Stevens County. <i>Definition query for 30% or greater slopes</i>

### *Agricultural Activities by Watershed*

Area	Acres	Percent of Total Ag
Total Agricultural Activities	62,471	100%
Lower Spokane- WRIA 54	7,063	11%
Little Spokane- WRIA 55	6,498	10%
Middle Lake Roosevelt- WRIA 58	8,958	14%
Colville River- WRIA 59	34,812	56%
Kettle- WRIA 60	1,773	3%
Upper Lake Roosevelt- WRIA 61	3,366	5%

## Lower Spokane Watershed- WRIA 54

### *Agricultural Activities*

Area	Acres	Percent
Total Area	275,855	NA
Agricultural Activities	7,063	3%

### *Critical Areas within Agricultural Lands*

Critical Area Type	Acres	Percent of Ag Lands
Wetlands	632	9%
Fish and Wildlife Habitat Conservation Areas*	487	7%
Critical Aquifer Recharge Areas	-	0%
Steep Slopes	188	3%
Frequently Flooded Areas.	413	6%

\*excludes northwest white-tailed deer

### *Streams*

Stream Type	Miles in Watershed
<b>Total Streams</b>	<b>1,702</b>
Shorelines of the State	76
Fish Use of Potential Fish Use	308
No Fish Use	1,126
Unknown	193

### *Wetlands Summary*

Wetland Type	Acres of Intersect
Freshwater Emergent Wetlands	559
Forested/Shrub Wetland	8
Riverine	64
Other	-

### *PHS Summary*

Habitat Type	Acres of Intersect
Moose	487
Northwest White-tailed Deer	1,841

## Little Spokane Watershed- WRIA 55

### *Agricultural Activities*

Landcover	Acres	Percent
Total Area	58,348	NA
Agricultural Activities	6,498	11%

### *Critical Areas within Agricultural Lands*

Critical Area Type	Acres	Percent of Ag Lands
Wetlands	128	2%
Fish and Wildlife Habitat Conservation Areas*	-	0%
Critical Aquifer Recharge Areas	-	0%
Steep Slopes	7	0%
Frequently Flooded Areas.	8	0%

\*excludes northwest white-tailed deer

### *Streams*

Stream Type	Miles in Watershed
<b>Total Streams</b>	2,171
Shorelines of the State	2
Fish Use of Potential Fish Use	405
No Fish Use	1,730
Unknown	33

### *Wetlands Summary*

Wetland Type	Acres of Intersect
Freshwater Emergent Wetlands*	93
Forested/Shrub Wetland	3
Riverine	30
Other	2

\*.30 acres are prior drained

### *PHS Summary*

Habitat Type	Acres of Intersect
Northwest Whitetailed Deer	632

## Middle Lake Roosevelt Watershed- WRIA 58

### *Agricultural Activities*

Landcover	Acres	Percent
Total Area	203,697	NA
Agricultural Activities	8,958	4%

### *Critical Areas within Agricultural Lands*

Critical Area Type	Acres	Percent of Ag Land
Wetlands	211	2%
Fish and Wildlife Habitat Conservation Areas	16	0%
Critical Aquifer Recharge Areas	-	0%
Steep Slopes	450	5%
Frequently Flooded Areas.	0	0%

*\*excludes northwest white-tailed deer*

### *Streams*

Stream Type	Miles in Watershed
<b>Total Streams</b>	<b>1,106</b>
Shorelines of the State	120
Fish Use of Potential Fish Use	174
No Fish Use	594
Unknown	218

### *Wetlands Summary*

Wetland Type	Acres of Intersect
Freshwater Emergent Wetlands*	118
Forested/Shrub Wetland	13
Riverine	80
Other	0.4

*\*2 acres are prior drained*

### *PHS Summary*

Habitat Type	Acres of Intersect
Northwest Whitetailed Deer	5,888
Wetlands	16

## Colville River Watershed- WRIA 59

### *Agricultural Activities*

Landcover	Acres	Percent
Total Area	645,797	NA
Agricultural Activities	34,812	5%

### *Critical Areas within Agricultural Lands*

Critical Area Type	Acres	Percent of Ag Lands
Wetlands	11,532	33%
Fish and Wildlife Habitat Conservation Areas*	3,765	11%
Critical Aquifer Recharge Areas	2,267	7%
Steep Slopes	486	1%
Frequently Flooded Areas	5,786	17%

\*excludes northwest white-tailed deer

### *Streams*

Stream Type	Miles in Watershed
<b>Total Streams</b>	<b>3,188</b>
Shorelines of the State	149
Fish Use of Potential Fish Use	730
No Fish Use	2,008
Unknown	301

### *Wetlands Summary*

Wetland Type	Acres of Intersect
Freshwater Emergent Wetlands*	11,264
Forested/Shrub Wetland	98
Riverine	162
Other	8

\*8,703 acres are prior drained

### *PHS Summary*

Habitat Type	Acres of Intersect
Bald Eagle	45
Biodiversity Areas and Corridor	963
Golden Eagle	575
Moose	51
Northwest Whitetailed Deer	16,855
Red-necked Grebe	6
Rocky Mountain Elk	169
Waterfowl Concentrations	1,533
Wetlands	420

### *CARA Summary*

CARA Susceptibility	Acres
HIGH	1,921
MODERATE	272
LOW	74

## Kettle Watershed- WRIA 60

### *Agricultural Activities*

Landcover	Acres	Percent
Total Area	68,252	NA
Agricultural Activities	1,773	3%

### *Critical Areas within Agricultural Lands*

Critical Area Type	Acres	Percent
Wetlands	36	2%
Fish and Wildlife Habitat Conservation Areas	0	0%
Critical Aquifer Recharge Areas	-	0%
Steep Slopes	59	3%
Frequently Flooded Areas.	4	0%

*\*excludes northwest white-tailed deer*

### *Streams*

Stream Type	Miles in Watershed
<b>Total Streams</b>	<b>398</b>
Shorelines of the State	25
Fish Use of Potential Fish Use	65
No Fish Use	263
Unknown	45

### *Wetlands Summary*

Wetland Type	Acres of Intersect
Freshwater Emergent Wetlands*	22
Forested/Shrub Wetland	1
Riverine	13
Other	-

*\*13.62 acres are drained*

### *PHS Summary*

Habitat Type	Acres of Intersect
Northwest Whitetailed Deer	904
Wetlands	0.39

## Upper Lake Roosevelt Watershed- WRIA 61

### *Agricultural Activities*

Landcover	Acres	Percent
Total Area	346,996	NA
Agricultural Activities	3,366	1%

### *Critical Areas within Agricultural Lands*

Critical Area Type	Acres	Percent of Ag Lands
Wetlands	199	6%
Fish and Wildlife Habitat Conservation Areas	1,029	31%
Critical Aquifer Recharge Areas	-	0%
Steep Slopes	69	2%
Frequently Flooded Areas.	178	5%

*\*excludes northwest white-tailed deer*

### *Streams*

Stream Type	Miles in Watershed
<b>Total Streams</b>	<b>1,619</b>
Shorelines of the State	138
Fish Use or Potential Fish Use	247
No Fish Use	1,113
Unknown or not typed	121

### *Wetlands Summary*

Wetland Type	Acres of Intersect
Freshwater Emergent Wetlands	164
Forested/Shrub Wetland	7
Riverine	28
Other	0

### *PHS Summary*

Habitat Type	Acres of Intersect
Bald Eagle	9
Golden Eagle	396
Moose	558
Northwest White-tailed deer	1,797
Rocky Mountain Elk	55
Wetlands	11

## Pend Oreille Watershed- WRIA 62

### *Agricultural Activities*

Landcover	Acres	Percent
Total Area	24,160	NA
Agricultural Activities	0	-

# Appendix E: VSP Stewardship Checklist

The Checklist is subject to change after approval of the VSP Work Plan. The attached checklist serves as an “individual stewardship plan” as described in the VSP statute, and a starting point for individual producers to assess critical area protection and stewardship practices.

☐ Self-reported

☐ Over phone by SCCD

☐ On-site with SCCD assistance

## STEWARDSHIP CHECKLIST

### Promoting Agriculture Viability and Protecting Critical Areas

The Voluntary Stewardship Program (VSP) is an optional, incentive-based approach to protecting critical areas while promoting agriculture. This checklist assists in evaluating the goals and benchmarks of the VSP Work Plan and serves as an individual stewardship plan referenced in the VSP law. **The VSP Work Plan aims to achieve protection and enhancement of critical areas through voluntary, incentive based measures by agricultural producers. This means increased flexibility for producers and fewer regulations.** Your time and patience in carefully and accurately filling out this checklist is much appreciated by the VSP Workgroup and Staff.

### Provide Location Information



**Instructions:** Review the definitions of agricultural activities and critical areas. Use online tools to review non-regulatory critical area maps. Visually review potential critical areas on or near your property, such as ponds, streams, wet areas, steep slopes, etc.

1. What basin is your agricultural property located within?

- a. Lower Spokane (WRIA 54) ☐
- b. Little Spokane (WRIA 55) ☐
- c. Middle Lake Roosevelt (WRIA 58) ☐
- d. Colville (WRIA 59) ☐
- e. Kettle (WRIA 60) ☐
- f. Upper Lake Roosevelt (WRIA 61) ☐
- g. Pend Oreille (WRIA 62) ☐

2. Identify potential critical areas intersecting with agricultural activities on your property:

- a. fish and wildlife habitat conservation areas ☐
- b. areas that are inundated or saturated with surface or ground water and support a prevalence of vegetation typically adapted for life in saturated soil conditions. Swamps, marshes, bogs, or similar areas. ☐
- c. frequently flooded areas ☐
- d. geologically hazardous areas ☐
- e. critical aquifer recharge areas ☐

**Note:** Checking one or more critical areas that may *potentially* be located on or adjacent to the property does not constitute an official determination of such a feature. It is helpful in filling out the rest of the checklist.

### Consult Technical Providers

Contact Technical Advisors to advise you or in order to apply for funding to establish conservation practices.

**Lead Technical Assistance Provider:** Stevens County Conservation District [http://www.co.stevens.wa.us/cons\\_district/](http://www.co.stevens.wa.us/cons_district/)

**Supporting Technical Assistance Providers:**

**USDA Natural Resources Conservation Service** <http://www.usda.gov/wps/portal/usda/usdahome>

**Washington State University Extension** <http://extension.wsu.edu/stevens/>

**Stevens County Land Services** <http://www.co.stevens.wa.us/landservices/>

This packet is solely intended to assist in the implementation of the Voluntary Stewardship Program by the Stevens County VSP Workgroup and Stevens County Conservation District. The information disclosed in this document is not applicable outside of the strictly voluntary nature of VSP, and is not to be used in any regulatory capacity whatsoever.

## General Conservation Practices that Protect Critical Areas:

The following agricultural practices are commonly applied in Stevens County and protect or enhance at least one of the following critical area functions and values:

- Water Quality
- Hydrology (excess water or insufficient water)
- Soil Health
- Fish & Wildlife Habitat

Please Indicate which practices you already do or are interested in doing.

Conservation Practice Examples	NRCS #	Done since 2011	I'm interested in this	Does not apply	Not interested
Visit <a href="https://efotg.sc.egov.usda.gov/toc.aspx?CatID=16204">https://efotg.sc.egov.usda.gov/toc.aspx?CatID=16204</a> to view NRCS practice standards.					
Access control to exclude animals, people, vehicles, and/or equipment from an area	472	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access road positioned away from habitat areas, water bodies, and water courses	560	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cover Crop	340	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Forest stand improvement	666	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Herbaceous Weed Control to remove invasive or noxious species.	315	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Integrated pest management. Chemicals and methods of chemical application are selected in a manner that minimizes risks to human health, beneficial and non-target organisms, and natural resources.	595	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Irrigation water management to improve irrigation efficiency.	449	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrient Management to control the amount, source, placement, and timing of nutrient applications.	590	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prescribed Grazing to manage vegetation and protect sensitive habitats	528	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Streambank and shoreline protection	580	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tree/shrub establishment: for forest products, habitat, energy conservation, erosion control	612	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waste storage facilities that prevent non-point source pollution of waterways from manure and other agricultural wastes.	313	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Watering facilities located away from streams or sensitive habitat areas.	614	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



**Streambank and Shoreline Protection**  
Photo courtesy of SCCD



**Access Control**  
Photo Courtesy of SCCD



**Off-channel Watering**  
Photo Courtesy of SCCD

*Stevens County Voluntary Stewardship Program*

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## Agriculture Intersecting with Fish and Wildlife Habitat Areas

**Definition of Fish and Wildlife Habitat Conservation Areas:** Land and waters managed to maintain populations of fish and wildlife species in suitable habitats within their natural geographic distribution over the long term. **Includes:**

- Areas where federal and state listed endangered, threatened and sensitive species have a primary association
- Streams classified as type 1-5 per WAC 222-16-030, administered by DNR.
- Lakes, ponds, streams, and rivers planted with game fish by a governmental entity.
- Naturally occurring ponds under 20 acres and their submerged aquatic beds that provide fish and wildlife habitat. Does not include ponds deliberately designed from dry sites such as canals, detention facilities, or farm ponds.

### VSP Protection Goal:

At the watershed scale and in relation to agricultural activities, prevent the degradation of fish and wildlife habitat conservation area functions and values existing as of July 22, 2011. FWHCA functions and values to be protected include:

- Water quality
- Habitat
- Hydrological Functions

Conservation Practice Examples	NRCS #	Done since 2011	I'm interested in this	Does not apply	Not interested
Restoration and management of rare and declining habitats	643	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Riparian Forest Buffer	391	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Streambank and shoreline protection	580	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stream habitat improvement and management	395	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Structures for wildlife, including raptor poles or nest boxes	649	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Upland wildlife habitat management	645	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Other ideas to meet the goal:</b>					



Riparian Vegetation  
Photo Courtesy of SCCD

Stevens County Voluntary Stewardship Program



Stream Habitat Improvement  
Photo Courtesy of SCCD

June 2017

## Agriculture Intersecting with Geologically Hazardous Areas

**Definition of Geologically Hazardous Areas:** areas that are susceptible to erosion, sliding, earthquake, or other geological events. In Stevens County, these include areas with “severe rill” and “inter-rill” erosion hazard, and areas with a 30% or greater slope.

### VSP Protection Goal:

At the watershed scale and in relation to agricultural activities, prevent the degradation of geologically hazardous area functions and values existing as of July 22, 2011. GHA functions and values to be protected include:

- Soil Health (potential for erosion and mass movement).

Conservation Practice Examples	NRCS #	Done since 2011	I'm interested in this	Does not apply	Not interested
Access control to exclude animals, people, vehicles, and/or equipment from an area	472	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access road positioned to control or reduce erosion on steep slopes.	560	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cover Crop on steep slopes.	340	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Forest stand improvement on steep slopes (30% or greater)	666	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tree/shrub establishment on steep slopes.	612	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Other ideas to meet the goal:</b>					

## Agriculture Intersecting with Critical Aquifer Recharge Areas

**Definition of CARAs:** areas with a critical recharging effect on aquifers used for potable water, or areas where an aquifer that is a source of drinking water is vulnerable to contamination that would affect the potability of water. There is one Critical Aquifer Recharge Area encompassing roughly 81 square miles in the southeastern portion of Stevens County

### VSP Protection Goal:

At the watershed scale and in relation to agricultural activities, prevent the degradation of CARA functions and values existing as of July 22, 2011. CARA functions and values to be protected include:

- Water Quality
- Hydrology (ability to recharge groundwater resources)

Conservation Practice Examples	NRCS #	Done since 2011	I'm interested in this	Does not apply	Not interested
Irrigation equipment maintenance including well casings and/ or seals	NA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Soil Testing	NA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Groundwater Testing	355	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Other ideas to meet the goal:</b>					

## Agriculture Intersecting with Wetlands

### Definition of Wetlands:

Areas that are inundated or saturated by surface water or groundwater supporting a prevalence of vegetation adapted for life in saturated soil conditions.

**Includes:** Swamps, marshes, bogs, and similar areas

**Excludes:** Artificial wetlands per WAC 365-190-030(22)

### VSP Critical Area Protection Goals

prevent the degradation of Wetland functions and values existing as of July 22, 2011. Wetland functions and values to be protected include:

- Water Quality
- Hydrology (water storage)
- Habitat

Conservation Practice Examples	NRCS #	Done since 2011	I'm interested in this	Does not apply	Not interested
Wetland Creation	658	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wetland Enhancement	659	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Other ideas to meet the goal:</b>					

## Agriculture Intersecting with Frequently Flooded Areas

### Definition of Frequently Flooded Areas:

Floodways and associated floodplains that have a one (1%) percent or greater chance of flooding in any given year. Frequently Flooded Areas are identified based FEMA on Flood Rate Insurance Maps.

### VSP Critical Area Protection Goals:

At the watershed scale and in relation to agricultural activities, prevent the degradation of Frequently Flooded Area functions and values existing as of July 22, 2011. FFA functions and values to be protected include:

- Water Quality
- Hydrology (flood storage and conveyance)
- Soil Health (erosion potential)

Conservation Practice Examples	NRCS #	Done since 2011	I'm interested in this	Does not apply	Not interested
Subsurface Drain	606	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Surface Drainage, Field Ditch	607	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grassed Waterway	412	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance and improvement of river channel to reduce flood impacts	NA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Other ideas to meet the goal:</b>					

*Flooding causes many impacts to agricultural production, including water contamination, damage to crops, loss of livestock, increased susceptibility of livestock to disease, flooded farm machinery, and environmental damage.*

### Step 3: Monitoring

A technical assistance provider, coordinated by Stevens County Conservation District, will contact you annually about the conservation practices installed. You may request a field visit to obtain advice on improving the effectiveness of the conservation practices.

### Ideas for Agriculture Viability Incentives and Outcomes

The VSP is designed to promote the viability of agriculture over the long term and to avoid unnecessary local critical area regulations due to the prevalence of conservation practices undertaken by willing producers. Producers may find cost-matching programs with technical providers (see contact information below).

What incentives could help you achieve your goals for your farm?

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### Education and Technical Assistance

The Stevens County VSP aims to ensure that adequate education and technical assistance is provided to agricultural operators in Stevens County.

Do you feel that there is adequate access to educational materials and technical assistance regarding critical areas and agriculture?

☐ Yes

☐ No

If you answered "No", what additional resources do you need?

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### For Information & Assistance

**Lead Technical Assistance Provider:** Stevens County Conservation District [http://www.co.stevens.wa.us/cons\\_district/](http://www.co.stevens.wa.us/cons_district/) **Dean Hellie**, 509-684-7579

### Critical Area Notes

Use this space to make additional notes about the conditions of any potential critical areas adjacent to your operation. It is best to include a date with each entry.

This image shows a full page of blank, lined paper. It features approximately 20 horizontal blue or grey lines spaced evenly apart, typical of notebook paper. The lines extend across the entire width of the page, leaving small margins at the top and bottom. There are no vertical lines, text, or other markings on the page.

# Appendix F: Summary of CPPE Practice Effects and Critical Area Functions and Values

## Resource Concerns and Definitions (NRCS 2016)

<b>SOIL</b>	
<b>SOIL EROSION - Sheet, rill, &amp; wind erosion</b>	Detachment and transportation of soil particles caused by rainfall runoff/splash, irrigation runoff or wind that degrades soil quality
<b>SOIL EROSION – Concentrated flow erosion</b>	Untreated classic gullies may enlarge progressively by head cutting and/or lateral widening. Ephemeral gullies occur in the same flow area and are obscured by tillage. This includes concentrated flow erosion caused by runoff from rainfall, snowmelt or irrigation water.
<b>SOIL EROSION– Excessive bank erosion from streams shorelines or water conveyance channels</b>	Sediment from banks or shorelines threatens to degrade water quality and limit use for intended purposes
<b>SOIL QUALITY DEGRADATION - Subsidence</b>	Loss of volume and depth of organic soils due to oxidation caused by above normal microbial activity resulting from excessive water drainage, soil disturbance, or extended drought. This excludes karst / sinkholes issues or depressions caused by underground activities.
<b>SOIL QUALITY DEGRADATION – Compaction</b>	Management induced soil compaction resulting in decreased rooting depth that reduces plant growth, animal habitat and soil biological activity
<b>SOIL QUALITY DEGRADATION – Organic matter depletion</b>	Soil organic matter is not adequate to provide a suitable medium for plant growth, animal habitat, and soil biological activity
<b>SOIL QUALITY DEGRADATION – Concentration of salts or other chemicals</b>	Concentration of salts leading to salinity and/or sodicity reducing productivity or limiting desired use Concentrations of other chemicals impacting productivity or limiting desired use
<b>WATER</b>	
<b>EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow</b>	Surface water or poor subsurface drainage restricts land use and management goals. Wind-blown snow accumulates around and over surface structures, restricting access to humans and animals.
<b>INSUFFICIENT WATER – Inefficient moisture management</b>	Natural precipitation is not optimally managed to support desired land use goals or ecological processes
<b>INSUFFICIENT WATER – Inefficient use of irrigation water</b>	Irrigation water is not stored, delivered, scheduled and/or applied efficiently Aquifer or surface water withdrawals threaten sustained availability of ground or surface water Available irrigation water supplies have been reduced due to aquifer depletion, competition, regulation and/or drought
<b>WATER QUALITY DEGRADATION – Excess nutrients in surface and ground waters</b>	Nutrients - organic and inorganic - are transported to receiving waters through surface runoff and/or leaching into shallow ground waters in quantities that degrade water quality and limit use for intended purposes
<b>WATER QUALITY DEGRADATION – Excess nutrients in surface and ground waters</b>	Nutrients - organic and inorganic - are transported to receiving waters through surface runoff and/or leaching into shallow ground waters in quantities that degrade water quality and limit use for intended purposes
<b>WATER QUALITY DEGRADATION – Pesticides transported to surface and ground waters</b>	Pest control chemicals are transported to receiving waters in quantities that degrade water quality and limit use for intended purposes
<b>WATER QUALITY DEGRADATION – Excess pathogens and chemicals from manure, bio-solids or compost applications</b>	Pathogens, pharmaceuticals, and other chemicals carried by land applied soil amendments are transported to receiving waters in quantities that degrade water quality and limit use for intended purposes. This resource concern also includes the off-site transport of leachate and runoff from compost or other organic materials of animal origin.
<b>WATER QUALITY DEGRADATION – Excessive salts in surface and ground waters</b>	Irrigation or rainfall runoff transports salts to receiving water in quantities that degrade water quality and limit use for intended purposes
<b>WATER QUALITY DEGRADATION – Petroleum, heavy metals and other pollutants transported to receiving waters</b>	Heavy metals, petroleum and other pollutants are transported to receiving water sources in quantities that degrade water quality and limit use for intended purposes
<b>WATER QUALITY DEGRADATION – Excessive sediment in surface waters</b>	Off-site transport of sediment from sheet, rill, gully, and wind erosion into surface water that threatens to degrade surface water quality and limit use for intended purposes
<b>WATER QUALITY DEGRADATION – Elevated water temperature</b>	Surface water temperatures exceed State/Federal standards and/or limit use for intended purposes
<b>PLANT</b>	
<b>DEGRADED PLANT CONDITION – Undesirable plant productivity and health</b>	Plant productivity, vigor and/or quality negatively impacts other resources or does not meet yield potential due to improper fertility, management or plants not adapted to site This includes addressing pollinators and beneficial insects.
<b>DEGRADED PLANT CONDITION – Inadequate structure and composition</b>	Plant communities have insufficient composition and structure to achieve ecological functions and management objectives This includes degradation of wetland habitat, targeted ecosystems, or unique plant communities.
<b>DEGRADED PLANT CONDITION – Excessive plant pest pressure</b>	Excessive pest damage to plants including that from undesired plants, diseases, animals, soil borne pathogens, and nematodes This concern addresses invasive plant, animal and insect species

<b>DEGRADED PLANT CONDITION– Wildfire hazard, excessive biomass accumulation</b>	The kinds and amounts of fuel loadings - plant biomass - create wildfire hazards that pose risks to human safety, structures, plants, animals, and air resources
<b>ANIMAL</b>	
<b>INADEQUATE HABITAT FOR FISH AND WILDLIFE – Habitat degradation</b>	Quantity, quality or connectivity of food, cover, space, shelter and/or water is inadequate to meet requirements of identified fish, wildlife or invertebrate species
<b>LIVESTOCK PRODUCTION LIMITATION – Inadequate feed and forage</b>	Feed and forage quality or quantity is inadequate for nutritional needs and production goals of the kinds and classes of livestock
<b>LIVESTOCK PRODUCTION LIMITATION – Inadequate livestock shelter</b>	Livestock lack adequate shelter from climatic conditions to maintain health or production goals
<b>LIVESTOCK PRODUCTION LIMITATION – Inadequate livestock water</b>	Quantity, quality and/or distribution of drinking water are insufficient to maintain health or production goals for the kinds and classes of livestock
<b>ENERGY</b>	
<b>INEFFICIENT ENERGY USE – Equipment and facilities</b>	Inefficient use of energy in the Farm Operation increases dependence on non-renewable energy sources that can be addressed through improved energy efficiency and the use of on-farm renewable energy sources. As an example, this concern addresses inefficient energy use in pumping plants, on-farm processing, drying and storage.
<b>INEFFICIENT ENERGY USE – Farming/ranching practices and field operations</b>	Inefficient use of energy in field operations increases dependence on non-renewable energy sources that can be addressed through improved efficiency and the use of on-farm renewable energy sources.
<b>AIR</b>	
<b>AIR QUALITY IMPACTS - Emissions of Particulate Matter - PM - and PM Precursors</b>	Direct emissions of particulate matter - dust and smoke -, as well as the formation of fine particulate matter in the atmosphere from other agricultural emissions - ammonia, NOx, and VOCs - cause multiple environmental impacts, such as: 1) The unintended movement of particulate matter - typically dust or smoke - results in safety or nuisance visibility restriction, 2) The unintended movement of particulate matter and/or chemical droplets results in unwanted deposits on surfaces, 3) Increased atmospheric concentrations of particulate matter can impact human and animal health and degrade regional visibility.
<b>AIR QUALITY IMPACTS - Emissions of Greenhouse Gases - GHGs -</b>	Emissions increase atmospheric concentrations of greenhouse gases.
<b>AIR QUALITY IMPACTS - Emissions of Ozone Precursors</b>	Emissions of ozone precursors - NOx and VOCs - resulting in formation of ground- level ozone that cause negative impacts to plants and animals.
<b>AIR QUALITY IMPACTS - Objectionable odors</b>	Emissions of odorous compounds - VOCs, ammonia and odorous sulfur compounds - cause nuisance conditions
<b>Human</b>	
<b>Cultural Resources and/or Historic Properties Present or Suspected to be Present (Effect)</b>	The degree to which implementation of the conservation practice is expected to increase or decrease the risk of cultural resource disturbance, degradation, or loss.
<b>Land - Change in Land Use</b>	The degree to which implementing the conservation practice is expected to cause a change from one land use to another.
<b>Land - Land in Production</b>	The degree to which implementing the conservation practice is expected to cause an increase or decrease in the amount of land in production.
<b>Capital - Change in Equipment</b>	The degree to which implementing the conservation practice is expected to cause an increase or decrease in the amount of capital equipment required for farm or ranch operations.
<b>Capital - Total Investment Cost</b>	A qualitative measure of the increase in total investment dollars required in order to implement the conservation practice.
<b>Capital - Annual Cost</b>	A qualitative measure of the expected change in annual capital costs required in order to operate and maintain the conservation practice.
<b>Capital - Credit &amp; Farm Program Eligibility</b>	Included to make conservation planners aware of the potential availability of funding for implementing conservation practices.
<b>Labor - Labor</b>	The degree to which implementing the conservation practice is likely to cause an increase or decrease in the total amount of overall farm or ranch labor required for operations.
<b>Labor - Change in Management Level</b>	The degree to which implementing the conservation practice is likely to cause an increase or decrease in the total amount of required active management on a farm or ranch.
<b>Risk - Yield</b>	The degree to which risk, as related to crop or livestock yields, is expected to increase or decrease as a result of implementing the conservation practice.

<b>Risk - Flexibility</b>	The degree to which risk, as related to the flexibility of farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice. For example, converting from flood irrigation to a sprinkler system gives a farmer an increase in flexibility of irrigation, which results in a decrease in the level of risk associated with inflexibility of operations.
<b>Risk - Cash Flow</b>	The degree to which risk, as related to cash flow in farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice.
<b>Profitability - Change in Profitability</b>	The degree to which farm or ranch profitability is expected to increase or decrease as a result of implementing the conservation practice.
<b>Operations &amp; Maintenance Factor</b>	The percentage of initial installation cost that a producer is expected to need to spend on an annual basis in order to perform the operations and maintenance (O&M) necessary to meeting the requirements of NRCS practice standards. To calculate expected annual O&M costs, multiply the installation cost by the O&M factor.
<b>Practice Life</b>	The period of time, measured in years, during which the conservation practice must remain fully functional--through design, construction, implementation, and/or O&M--in order to meet the requirements of NRCS practice standards.
<b>Estimated Average Installation Cost</b>	An estimate, based on national data, of the average total cost of installing a typical or representative case of the conservation practice. This figure includes only "cost-shareable" expenses and is intended to give conservation planners a rough or "ballpark" idea as to the relative costs of implementing different conservation practices. It is not intended for use as the basis for calculating actual cost estimates for specific conservation systems or practices on individual land units.
<b>Estimated Average Annual Cost</b>	Calculated by amortizing the estimated average annual installation cost over the practice standard life of the practice and then adding expected annual O&M costs in order to estimate the average annual cost of implementing the practice.

# Appendix G: Aerial Monitoring Memo

Aerial imagery can serve as a tool to examine how the landscape changes over time in places where agriculture and critical areas intersect. For VSP monitoring, publicly available aerial imagery can be used to assess watershed-scale changes to fish and wildlife habitat conservation areas, floodplains, and steep slopes, and wetlands in relation to agricultural activities. The VSP Workgroup and VSP technical staff have developed a suggested framework for aerial monitoring which is outlined in this memo. The approach is designed to be practical, affordable, reliable, repeatable, and respectful of the privacy of individual landowners. In the future, the monitoring approach may be updated or improved based on available technology, data, and expertise if approved by the VSP Workgroup.

## Monitoring Vegetation Change with Aerial Imagery

Vegetation is an important indicator of critical area functions and values. Aerial monitoring for VSP is focused on major vegetation changes within key areas of interface between agriculture and critical areas. Using publicly available data and practical analysis techniques to track vegetation changes, baseline monitoring can be conducted for the following critical areas:

- Fish and Wildlife Habitat Conservation Areas (vegetation in riparian areas)
- Geologically Hazardous Areas (vegetation on steep slopes)
- Frequently Flooded Areas (vegetation within the 100 year floodplain)

### *Suggested Software*

The following proprietary software is needed for vegetation analysis and summarization of results:

- *ESRI ArcMAP* version 9.0 or higher, with spatial analyst extension
- *Microsoft Office Suite*
- *WinZip Universal* or comparable

### *Suggested Data Sources*

The suggested data sources for conducting vegetation analysis are summarized below. Additional data sources may be used if determined necessary by the Workgroup and VSP technical staff.

Information	Source	Time Period	Notes
Landsat Imagery	USGS	2011, most recent	Landsat 4-5 for 2011, Landsat 8 subsequent. Downloaded from USGS EarthExplorer.
NAIP Imagery	USDA	2011, most recent	1 meter pixel imagery
County Boundary	Washington DOT	NA	Available via ArcGIS Online
Mapped Streams	Washington DNR	Most recent	Can filter by stream class or SMA designation
Agricultural Activities	WSDA	2011, most recent	Available on request from WSDA
WRIA boundaries	Ecology	Most recent	Available online from Ecology site
PHS Regions	WDFW	2011, most recent	Available on request from WDFW
Steep Slopes	USDA SSURGO	2011, most recent	Filter for slopes > 30%
100-year floodplain	FEMA	2011, most recent	Flood zone A and AE.

### *Suggested Methodology for Vegetation Monitoring*

The proposed method of vegetation monitoring combines multispectral remote sensing with simple visual verification. Lower-resolution (30m pixel) Landsat imagery is used to detect vegetation change over a set time period, while more detailed NAIP imagery is used to verify and inventory the changes that are detected. Generally, images from the 2011 VSP baseline year will be compared to the most recent imagery available to assess changes. The suggested steps to complete the analysis for the 2021 reporting deadlines are summarized below:

TASK #	TASK DESCRIPTION
1	Create appropriate folders to store imagery downloads, and processed imagery.
2	Download NAIP imagery or obtain from Stevens County GIS department (2011 & 2021).
3	Download Landsat Imagery (2011 & 2021) for Stevens County from <a href="https://earthexplorer.usgs.gov">https://earthexplorer.usgs.gov</a> . Try to choose dates that correspond with NAIP imagery flyover dates. Unzip files using WinZip or similar program.
5	Create composite rasters for 2011 and 2021 from the individual Landsat band rasters.
6	Mosaic composite rasters so that there is one composite raster covering the entire county for both 2011 and 2021.
7	Create a Normalized Difference Vegetation Index (NDVI) for the 2011 and 2021 images.
8	Calculate a new “NDVI change” image showing the difference between the 2011 and the 2021 NDVI rasters.
9	Normalize the NDVI change image based on known <i>unchanged</i> areas, i.e. rooftops. These areas should have a pixel value near zero.
10	Classify the NDVI change image so that significant positive and negative changes are displayed. Forestry clear-cuts (even if irrelevant to VSP) are a useful “significant change” benchmark to determine classification thresholds.
11	Fact-check the NDVI change image using areas of known vegetation change.
12	Set minimum accuracy threshold for classification of positive and negative changes and conduct ground-truthing or additional analysis to verify that minimum threshold is being met.
13	Clip the NDVI change image to relevant critical areas: <ul style="list-style-type: none"> <li>• Riparian areas (using standardized offsets from DNR streams)</li> <li>• Steep slopes (30% or greater)</li> <li>• Floodplains</li> </ul>
14	Create grid squares that overlay the vegetation changes that occurred on ag lands (WSDA) to allow for systematic visual analysis. Grid squares are NOT used to define specific areas for repeated analysis, they are simply an organizational tool to allow for systematic analysis.
15	Proceeding systematically through each overlayed grid square, use NAIP imagery from 2011 and 2021 to confirm NDVI change pixels as <i>positive</i> , <i>negative</i> , or <i>not-applicable</i> . The criteria for a pixel to be <i>not applicable</i> should be defined beforehand. Record results in tabular form.
16	Conduct ground-truthing for at least 10% of the analysis areas showing positive or negative change. Ground-truthing should focus on areas that are near the threshold level for positive or negative change because these areas have a higher likelihood of being misclassified.
17	After ground-truthing, summarize positive and negative changes in tabular form by watershed. Report watershed scale results in terms of positive and negative change pixels (or area).

## Wetlands:

Monitoring wetlands at the watershed-scale is difficult because functions and values are not always visually apparent. Information from the National Wetlands Inventory is not a reliable way to determine the actual existence of wetlands in Stevens County, particularly on agricultural lands where many wet areas have been drained or altered prior to 2011. Accordingly, wetland monitoring will focus on the areas that are also identified and mapped by WDFW as “wetland habitat” on the PHS Map. Publicly available aerial imagery (NAIP or comparable) can be used to monitor the mapped wetland habitats where they intersect with agricultural activities. Technicians can look for clear changes in the extent or character of those areas in relation to agricultural activities. Any relevant changes will then be summarized and reported on a watershed basis, without identifying individual parcels.

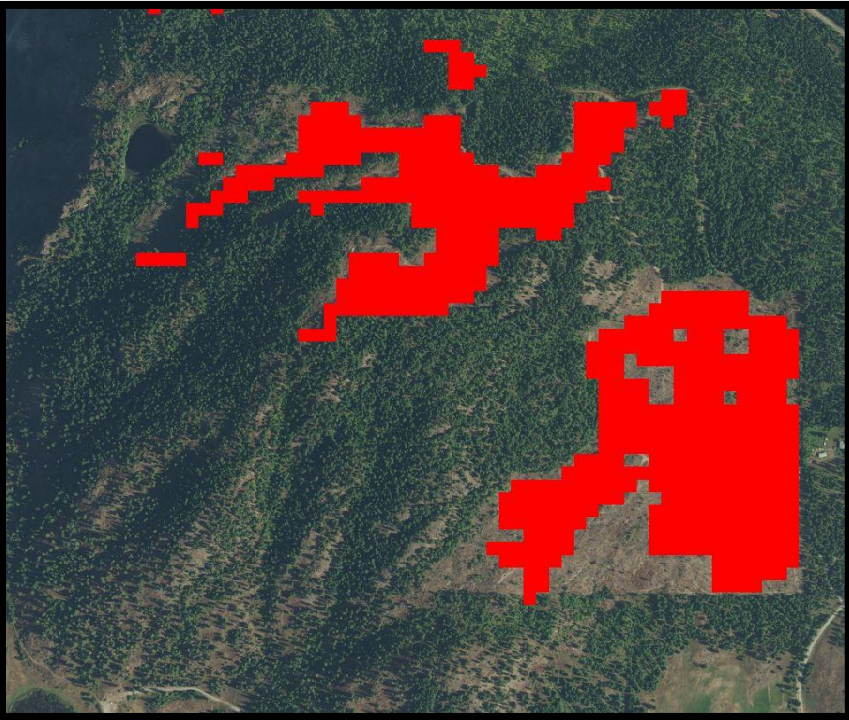
Vegetation Change Detection Examples with Landsat and NAIP Imagery<sup>1</sup>



2011 NAIP Image



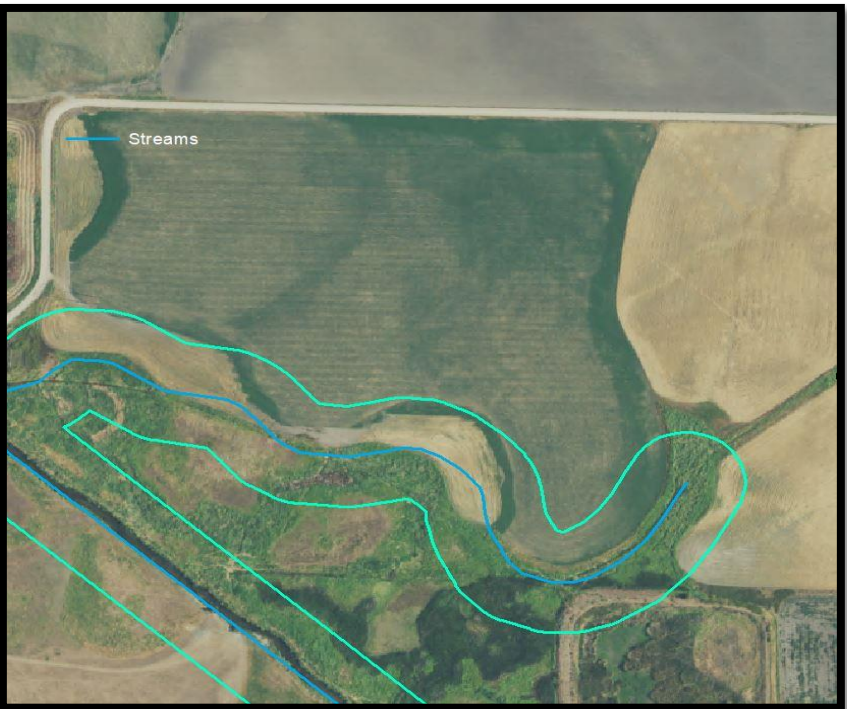
2015 NAIP Image showing vegetation removal



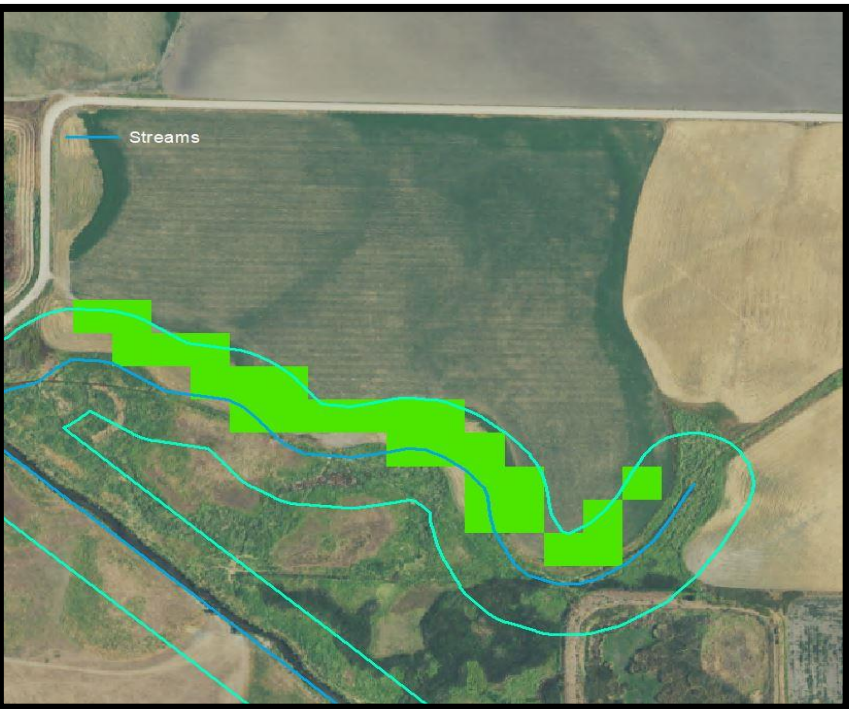
2015 NAIP Image with vegetation changes detected using Landsat Imagery<sup>2</sup>



2011 NAIP Image – Riparian Area



2015 NAIP Image – Riparian Area



2015 NAIP Image with vegetation changes detected using Landsat imagery

<sup>1</sup> For illustration purposes only. VSP reporting will describe aggregate changes at the watershed scale and will not include images or exact locations of vegetation changes.

<sup>2</sup> Timber harvest is controlled outside of the VSP. The images showing timber harvest were used to provide a clear demonstration of vegetation change detection.

# Appendix H: Statements of Disagreement

Some local VSP Workgroup participants did not agree with all elements of the Work Plan in its final draft form. This appendix lists opinions that were voiced during the Work Plan development process but were not incorporated into the plan.

## Statement from Stevens County Property Rights Group Regarding Wetlands

*Stevens County Property Rights Group disagrees that there are wetlands in Stevens County, based on expert testimony by a licensed Washington State hydrogeologist. While wetlands are referenced in the VSP Work Plan, Stevens County Property Rights Group does not acknowledge the existence of wetlands in Stevens County.*

## Appendix I: Adaptive Management Examples

